#882

INLAND APPEAL FORM

SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
976 OSOS STREET • ROOM 200 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600

Promoting the Wise Use of Land • Helping to Build Great Communities

Please Note: An appeal should be filed by an aggrieved person or the applicant at each stage in the process if they are still unsatisfied by the last action.

PROJECT INFORMATION Name: Cypress Ridge L.P. File Number: Tract 2993 SUB2008-00028

Type of permit being appealed:

☐ Plot Plan ☐ Site Plan ☐ Minor Use Permit ☒ Development Plan/Conditional Use Permit

☐ Variance ☐ Land Division ☐ Lot Line Adjustment ☐ Other: _____

The decision was made by:

☐ Planning Director (Staff) ☐ Building Official ☐ Planning Department Hearing Officer

☐ Subdivision Review Board ☒ Planning Commission ☐ Other _____

Date the application was acted on: February 27, 2014

The decision is appealed to:

☐ Board of Construction Appeals ☐ Board of Handicapped Access

☐ Planning Commission ☒ Board of Supervisors

BASIS FOR APPEAL

State the basis of the appeal. Clearly state the reasons for the appeal. In the case of a Construction Code Appeal, note specific code name and sections disputed). (Attach additional sheets if necessary)

Cypress Ridge residents have made PM10 dust a major issue; therefore, BoS, APCD, and community review of EIR, mitigated neg. dec. & clean air plan is necessary. Further basis and detail to be provided at a later date.

List any conditions that are being appealed and give reasons why you think it should be modified or removed.

Condition Number 38(q)(r)(s), et al. Reason for appeal (attach additional sheets if necessary)

Project will emit PM10 pollution contributing to PM10 non-attainment in the region. Project will place additional sensitive receptors (individuals) in region present Cypress Ridge residents claim is unhealthy. Further to be provided.

APPELLANT INFORMATION

Print name: Integrity San Luis Obispo

Address: PO Box 14107, San Luis Obispo CA 93406-4107

Phone Number (daytime): (805) 602-2616

We have completed this form accurately and declare all statements made here are true.

Kerry Rigg
Signature

March 5, 2014
Date

2014 MAR -5 PM 2:50
SLO CNTY PLANNING/BUILDING DEPT

OFFICE USE ONLY
Date Received: 3/5/14 By:
Amount Paid: $850.00 Receipt No. (if applicable): 02124

IntegritySLO.org

2014 March 13
Re: Cypress Ridge L.P. Tract 2993 (SUB2008-00028)

Via: Electronic Mail

Brian Pedrotti
Department of Planning and Building
San Luis Obispo County
976 Osos Street Rm 200
San Luis Obispo CA 93408-1002
(805) 788-2788
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SUBJECT: APPEAL OF CYPRESS RIDGE, L.P. (SUB2008-00028)
BASIS AND CONDITIONS BEING APPEALED

Dear Mr. Pedrotti:

This document supplements the appeal filed in your office on March 5, 2014 pertaining to the Cypress Ridge, L.P. project, county file number SUB2008-0028 (hereinafter, "the project" or "Cypress Ridge II"). Appellant, Integrity San Luis Obispo, seeks Board of Supervisors review of the Planning Commission's February 27, 2014 decision to adopt a Mitigated Negative Declaration regarding the project.

Contained herein, are the bases for appeal and conditions (and lack of conditions) being appealed.

CYPRESS RIDGE II PROJECT
The project seeks to permit a cluster subdivision of two existing 20.78 and 40.02 acre parcels (Figure 1) resulting in twenty-one parcels of approximately one acre each for the purpose of sale and/or development and two open space parcels of 21.2 and 14.6 acres. The project will result in the disturbance of approximately 40 acres of a 61-acre site as a result of the access drive, access trails, and future residences on the proposed parcels. The site is in the South County Inland planning area.

STAFF ENVIRONMENTAL (CEQA) REVIEW
County Planning and Building Department staff completed an Initial Study[1] ("IS") for the project dated October 24, 2013, determining the project could have "Potentially Significant Impacts" ("PSIs") for numerous environmental factors, indicating: Aesthetics, Agricultural Resources, Air Quality, Biological Resources, Cultural Resources, Noise, Public Services/Utilities, Recreation, and Water/Hydrology.

Staff further determined an Environmental Impact Report ("EIR") is not required due to revisions made to the project and that a Mitigated Negative Declaration ("MND") would instead be prepared. Staff issued the MND on November 7, 2013, submitting it to the Planning Commission for hearing on February 27, 2014 along with a staff report[2] (hereinafter, "Staff Report") including proposed findings and conditions.

[1] County of San Luis Obispo, Initial Study for Cypress Ridge II, TR 2993. October 24, 2013.
[2] Planning Commission meeting (February 27, 2014), Item 2 staff report.

Figure 1 – Cypress Ridge II parcel vicinity map. Project abuts east side of existing Cypress Ridge I development.

NIPOMO MESA PARTICULATE MATTER AIR POLLUTION OVERVIEW

A significant cause for concern regarding the project is the failure of staff and the Planning Commission to capture up to date air quality review by the San Luis Obispo County Air Pollution Control District ("APCD"). The APCD comments regarding the project[3] were submitted October 27, 2008—nearly five and one-half years ago.

Since that time, the APCD has raised very substantial public concern pertaining to particulate matter air pollution (both PM_{10} and $PM_{2.5}$) in the Nipomo Mesa region. Both PM_{10} and $PM_{2.5}$ are criteria pollutants subject to national ambient air quality standards (NAAQS) as well as California standards (CAAQS).

It was not until February 2010 when the APCD released its "South County Phase 2 Particulate Study", which raised general public awareness and alarm subsequent to heavy media coverage. The APCD greatly intensified public outreach campaigns, attending approximately 30 events in 2010 and 2011, promoted its air quality forecasting program, school "flag program" and other school education, and began a Clean Air Kids and Clean Air Ambassadors programs.[4] During this same period, numerous Nipomo Mesa area residents became heavily interested in particulate matter in their community and began forming activist affiliations, showing up at government meetings and further increasing community alarm.

On November 16, 2011, the APCD Board approved Rule 1001, a local regulation intended to reduce PM_{10} and $PM_{2.5}$ concentrations in the Nipomo Mesa region.

[3] Staff Report, at pp. 142–147.
[4] http://www.slocleanair.org/apcdfiscal.php (Accessed March 13, 2014.)

The (latest available) APCD 2012 Annual Air Quality Report (Attachment A) indicates San Luis Obispo County is designated as a non-attainment area for the state 24-hour and annual PM_{10} standards.[5] Three exceedances of both the federal PM_{10} and $PM_{2.5}$ standards occurred near the project in 2012.[6] Dozens of exceedances of the state standard for PM_{10} were also recorded near the project site.[7]

The APCD reports: "In contrast to the rest of the county, where PM_{10} and $PM_{2.5}$ levels have trended downward over the last 20 years, the Nipomo Mesa continues to see high levels of particulate matter pollution; there is no evidence of improvement at CDF or Mesa2 [air monitoring stations], and only slight improvement has been observed at Nipomo Regional Park."[8]

In its 1991–2011 Air Quality Trends[9] report, the APCD writes in its executive summary (at p. 6), "PM_{10} and $PM_{2.5}$ levels continue to frequently exceed health standards in the South County with no evidence of improvement."

On February 27, 2014, activists residing within the existing Cypress Ridge development—directly adjacent to the proposed project—filed suit in San Luis Obispo County Superior Court.[10] The law suit alleges "high PM levels on Nipomo Mesa expose the residents to a serious and continuing health risk,"[11] and "PM pollution creat[es] a public nuisance and trespass,"[12] and that "the County has knowingly and willfully allowed the nuisance and trespass onto private properties to persist with the knowledge of the health effects of the PM pollution and the harm caused to the residents…"[13]

In summary, the political, regulatory, and status quo landscape in regards to air quality on the Nipomo Mesa has radically changed since the APCD submitted comments on the project in 2008. *De novo* review of the project by the APCD and its legislative body (the APCD Board) is critical. The APCD Board should be involved because the subject of particulate matter on the Nipomo Mesa includes ongoing litigation against the APCD and complex ongoing negotiations between the APCD and numerous other state and local agencies.

FAILURE OF WOODLANDS SPECIFIC PLAN EIR MITIGATION MONITORING PROGRAM

Little assurance or confidence exists that project mitigations and conditions imposed on Cypress Ridge II addressing air quality will be effectively carried out. These doubts stem from what appears to be a complete failure of mitigation monitoring at the ongoing Woodlands development.

Appendix J of the certified Woodlands Specific Plan Final Environmental Report (1998) establishes a "Mitigation Monitoring Program" in order to "verify and document that project implementation is conducted in compliance with specifications relating to mitigation plans, environmental protection and environmental requirements set forth in project permits and approvals, including the EIR."

[5] APCD 2012 Annual Air Quality Report, at p. 7.
[6] *Id.*, at p. 12.
[7] *Ibid.*
[8] *Id.*, at p. 37.
[9] http://www.slocleanair.org/images/cms/upload/files/Final%20AQ%20Trends%282%29.pdf (Accessed March 13, 2014.)
[10] *Mesa Community Alliance v. California Parks and Recreation, et al.* (Super. Ct. San Luis Obispo County, February 27, 2014, No. 14CV-0096.)
[11] *Id.*, at p. 5, ¶ 17.
[12] *Id.*, at p. 11, ¶ 42.
[13] *Id.*, at p. 12, ¶ 45.

Monitoring requirements include designation of an Environmental Compliance Monitor for the Woodlands project responsible for preparing noncompliance reports, environmental monitoring reports, and reporting to the County and other agencies as described in the mitigation plans. San Luis Obispo County Air Pollution Control District is one of the "other agencies".

The Mitigation Monitoring Program specifies that the Environmental Compliance Monitor "shall provide a Daily Environmental Report … Also, a monthly progress report, including a summary of activities…" Additionally, a quarterly monitoring report is identified.

The APCD is identified as the "Party Responsible" for monitoring oversight for a number of mitigation measures in the Woodlands Specific Plan, including:

Mitigation Measure/Specific Plan Number	Summary of Mitigation Measuress	Monitoring Reporting Schedule
4.3-1c	Use reasonable, typical watering techniques to reduce fugitive dust emissions	Random checking throughout grading & construction stages until vegetation successfully established. Report to be prepared quarterly during construction.
	Wet all unpaved demolition/construction areas at least twice a day.	Report to be prepared quarterly. Random checking throughout grading & construction stages until vegetation successfully established.
	Use temporary dust covers over stockpiled areas.	Report to be prepared quarterly.
	Additional watering should be undertaken	Random checking throughout grading & construction stages until vegetation successfully established. Report to be prepared quarterly during construction.
4.3-1d	Spread soil binders shall be spread where regular construction vehicle usage (unpaved road & parking areas).	During construction activities. Report to be prepared quarterly.
4.3-1e	Re-establish ground cover through seeding and watering.	After completion of grading and periodically thereafter until plant seed head emerges or 80% coverage of perennials. Report to be prepared quarterly.
4.3-1f	Wash trucks, prior to leaving site.	Ongoing during construction. Report to be prepared quarterly.
4.3-1g	Submit APCD-approved Construction Activities Management Plan.	Prior to initiation of tree clearing activities, or approval for subdivision improvement plans or issuance of grading permits.

On Friday, November 22, 2013, a public records request was made to the APCD asking for copies of "the most recent two" quarterly environmental monitoring reports, monthly progress reports, and noncompliance reports. On December 20, 2013, the APCD disclosed two monitoring reports dated November 15, 2005 and February 13, 2006. In other words, the "most recent" reports are over eight years old! Yet recent site visits indicate intense, dust-producing, heavy equipment and construction operations are ongoing at Woodlands (Figures 2 and 3).

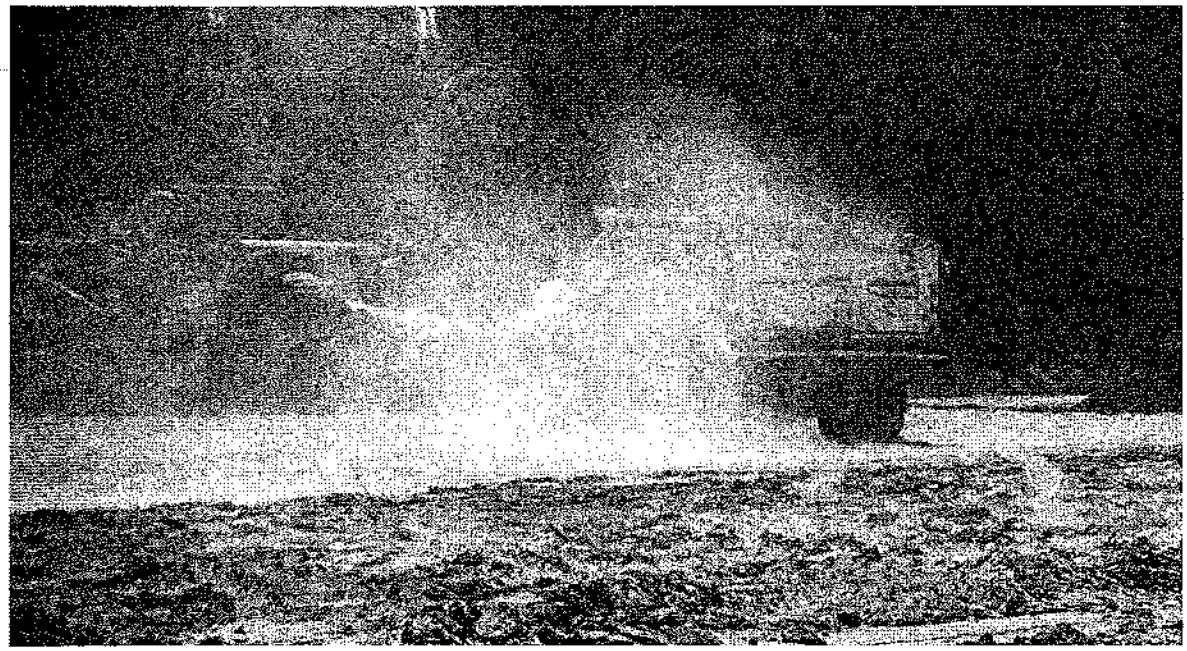

Figure 2 – Unmitigated dust emanating from ongoing heavy equipment operation at Woodlands (Sep. 2013).

Figure 3 – Unmitigated fugitive dust entrained by wind from denuded empty lots at Woodlands project (Sep. 2013).

Mitigations and conditions imposed on the Cypress Ridge II project are of little consolation given the apparent eight-year lack of mitigation monitoring by the APCD and County at the Woodlands project. Particularly regrettable is the loss of thick eucalyptus "dust filters" around Woodlands. Stands of eucalyptus have been thinned significantly beyond minimum requirements mandated by the Woodlands Specifc Plan. The County, APCD and its Board should immediately review these major particulate matter concerns before new and additional dust emitting projects are permitted on the Nipomo Mesa.

AGRICULTURE

Agricultural fields on Nipomo Mesa produce extreme amounts of particulates during wind events.[14] Irrigation sprinklers used to control dust are ineffective (Figure 4) unless continuously operated. Rotational watering—sprinklers operated one zone at a time in a rotating pattern—allow time for soils to dry. In strong winds, soils dry and become friable again in mere minutes.

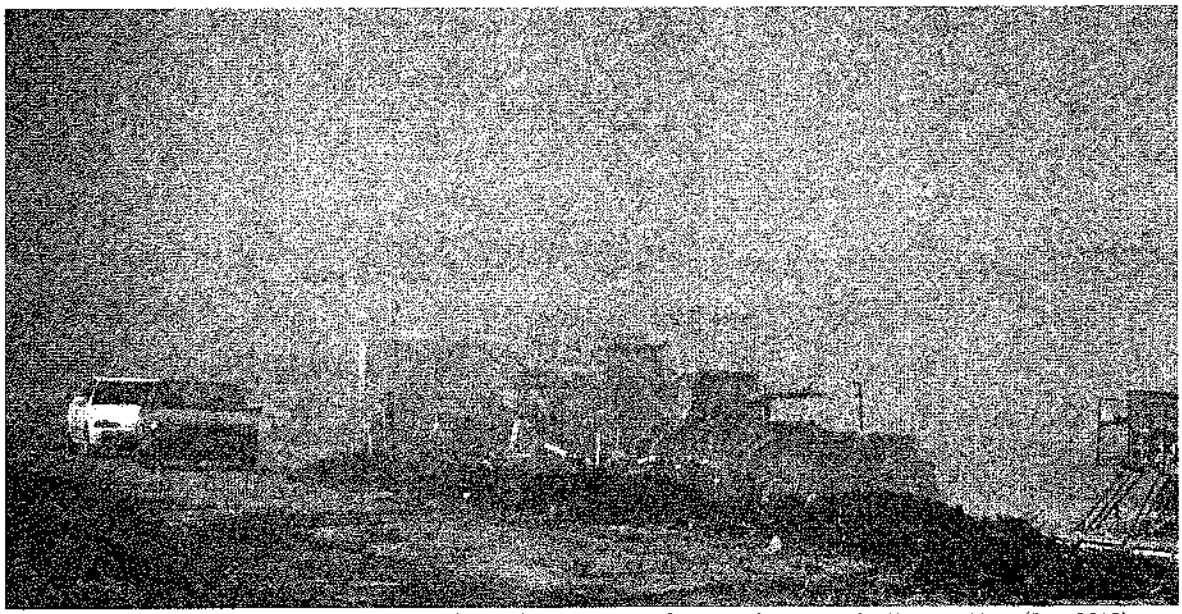

Figure 4 – Thick dust emits from agricultural field directly across street from residences on the Nipomo Mesa (Sep. 2013).

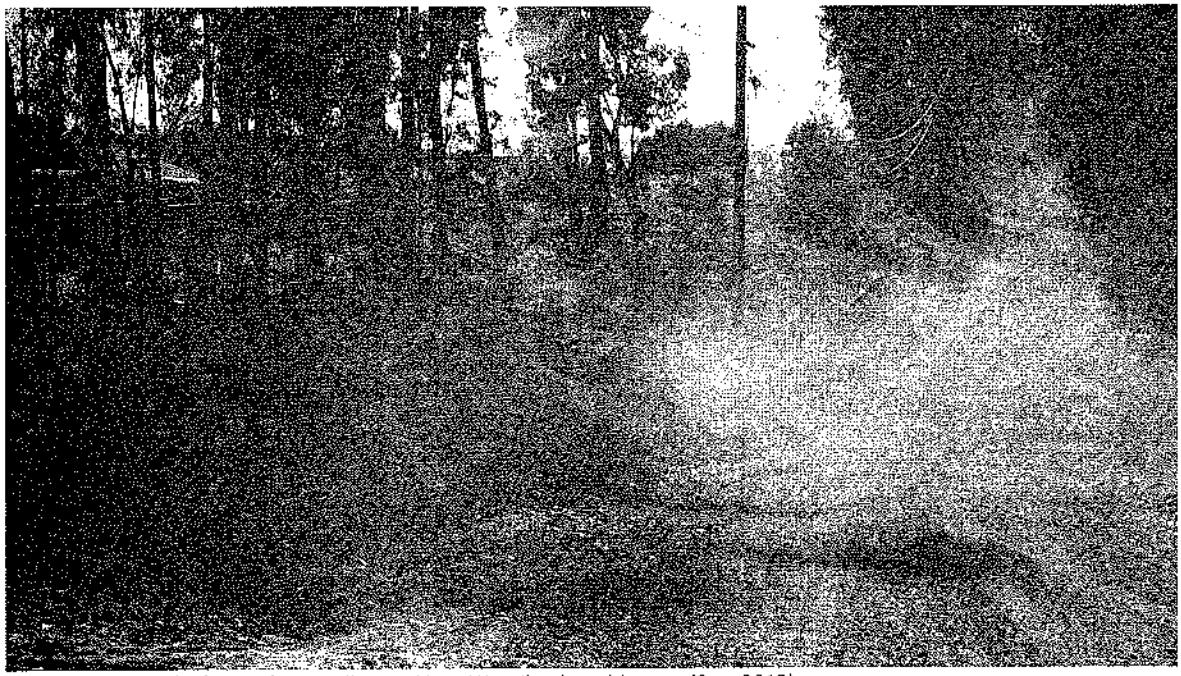

Figure 5 – Dust drifts from adjacent dirt road into Woodlands residences. (Sep. 2013).

[14] See APCD South County Community Monitoring Project report (2013), Appendix C, at p. C-34. http://slocleanair.org/communitymonitoringproject.php

DIRT ROADS

Dirt roads cause 31 percent of PM_{10} pollution in the county (Figure 5). The APCD wrote in 2007, "Dirt roads with fine sandy soil were seen to add an additional particulate load to the air in their vicinity, contributing to some of the highest particulate measurements."[15]

The APCD actually recommended in 2007: "To reduce the elevated PM concentrations observed in localized areas near dirt roads, it is recommended that the District move forward with the proposed PM control strategies adopted by the Board as part of the 2005 Particulate Matter Report to meet the requirements of SB 656. This includes a control strategy to reduce emissions from high volume unpaved roads by working with County Public Works, County Planning and Building Department, South County Advisory Council and developers to evaluate and implement measures such as speed limit reductions, application of dust suppressants or paving new and existing unpaved roads in areas of higher population where exposure is greatest."[16]

Seven years later, neither the county nor the APCD are regulating dirt roads at all, or even considering doing so.

PHILLIPS 66 RAIL SPUR PROJECT

The very same Cypress Ridge residents that initiated the *Mesa Community Alliance* litigation (*supra*) are also opposing the Phillips 66 refinery rail spur project. A significant component of their opposition is concern about particulate matter emission from that project.

A HOLISTIC PARTICULATE MATTER SOLUTION IS NEEDED

The incremental, cumulative addition of PM_{10} and $PM_{2.5}$ emitting projects, along with neglect or failure to control existing known emitters is unacceptable. The Nipomo Mesa is already experiencing numerous exceedances of state and federal ambient air quality standards for these criteria pollutants.

In 2012, a total of 115 exceedances of the state 24-hour PM_{10} standard were observed between three air monitoring stations on 72 different days.[17] A single new PM_{10} source ***will result in additional exceedances of state and/or federal ambient air quality standards, and will result in a cumulative net increase in this criteria pollutant.***

Because the Nipomo Mesa is on the threshold of exceeding PM air standards many days per year, even modest particulate matter emissions from the project will increase the observed number of pollution exceedances. The project should mitigate ***all*** PM emissions if not attain a negative emission via off-site reductions. Failing to do so exacerbates existing litigation (i.e., *Mesa Community Alliance*) and subjects residents to pollutant concentrations deemed unhealthy by the APCD for nearby sensitive receptors.

Note that this project is especially likely to draw new residents who are sensitive receptors into a region the APCD and Health Department frequently advise is unhealthy for sensitive groups.

Instead of considering—and ignoring—the net emissivity of the Cypress Ridge II project (and other projects), a holistic particulate matter solution for the Nipomo Mesa is necessary. This challenge should be submitted to the APCD Board for development, and might include off-site mitigation credits (i.e., paving dirt roads, installing vegetation barriers, etc.) such that new projects would actually improve air quality on the Nipomo Mesa instead of imposing an incremental detriment.

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[15] APCD, Nipomo Mesa Particulate Study (2007) ["Phase 1"], at p. 53. http://slocleanair.org/images/cms/upload/files/air/pdf/pm_report2006_rev1.pdf

[16] *Id.*, at p. 49, "Recommendations".

[17] ATTACHMENT A: APCD 2012 Annual Air Quality Report, at p. 12.

BASIS FOR APPEAL

Appellant believes staff's Initial Study overlooks, minimizes, and dismisses numerous Potentially Significant Impacts (PSIs) without adequate justification and/or based upon outdated information. An enumeration of each PSI included in the basis for appeal follows, including comments. The same numbering system used in the Initial Study is adopted here.

2. AGRICULTURAL RESOURCES

(b) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

The project does, in fact, convert Farmland of Statewide Importance to non-agricultural use. County goals and policies note that conservation of agricultural resources, notably soil and water are vital components necessary for a successful agricultural industry in the county.

The County Agriculture Department considers the conversion of the on-site soil resources to be a potentially significant impact.[18]

(c) Impair agricultural use of other property or result in conversion to other uses.

Proximity to farmland causes dust, pesticide, farm traffic and noise exposure to future residents and creates a nearby conflicting use which significantly impacts both agriculture and the project residents.

3. AIR QUALITY

(a) Violate any state or federal ambient air quality standard, or exceed air quality emission thresholds as established by County Air Pollution Control District.

Federal and State ambient air quality standards (NAAQS and CAAQS) are already being violated in the project area numerous times per year for PM_{10} and $PM_{2.5}$. Many non-violation days are already at threshold levels. The slightest emission will cause additional violations. PM and GHG emissions need to be re-evaluated as the APCD comments are 5½ years old.

(b) Expose any sensitive receptor to substantial air pollutant concentrations.

The project will especially attract older residents who are sensitive receptors. Numerous NAAQS and CAAQS violations in the region are not mitigated by the MND or imposed conditions.

(c) Create or subject individuals to objectionable odors.

A large refinery is upwind and regularly generates odor complaints. The APCD should evaluate and quantify the number of odor complaints it has historically received in the general project area.

(d) Be inconsistent with the District's Clean Air Plan.

The APCD has already indicated it does not support the project due to inconsistency with the Clean Air Plan. That determination was made 5½ years ago and should be re-determined.

[18] County Agriculture Department, August 10, 2009. (Staff Report, at p. 130.)

(e) Result in a cumulatively considerable net increase of any criteria pollutant either considered in non-attainment under applicable state or federal ambient air standards that are due to increased energy use or traffic generation, or intensified land use change.

Federal and State ambient air quality standards (NAAQS and CAAQS) are already being violated in the project area numerous times per year for PM_{10} and $PM_{2.5}$. The project area is in non-attainment for particulate matter. Many non-violation days are already at threshold levels. The slightest emission will cumulatively cause increases for these criteria pollutants resulting in additional violations. PM and GHG emissions need to be re-evaluated as the APCD comments are 5½ years old.

(h) Fugitive Dust.

Project site soils are *Oceano sand* and susceptible to entrainment by winds.[19] The area has significant seasonal wind events. Soils do not retain water due to high permeability[20] and, therefore, watering is not effective for mitigation of fugitive dust during wind events.

The project will disturb 40 acres of soil,[21] and will generate fugitive dust affecting local residents and business in close proximity to the project site. Dust complaints could result in violation of the APCD's nuisance rules, a potentially significant air quality impact. There presently exists litigation against the county by residents of from Cypress Ridge I alleging a dust nuisance.

The APCD should review and produce data on the number of dust nuisance complaints that have historically been filed by area residents.

ADDITIONAL REMARKS

The APCD's comments on this project are 5½ years out of date. This project should be re-submitted to the APCD. Vastly different air quality circumstances now exist on the Nipomo Mesa that were not recognized or regulated in 2008. *De novo* review of the project by the APCD and its legislative body (the APCD Board) is critical.

The project will add even more sensitive receptors to a non-attainment area which both the APCD and Health Department frequently warn is unhealthy for sensitive receptors.

4. BIOLOGICAL RESOURCES

(b) Reduce the extent, diversity or quality of native or other important vegetation.

Stands of eucalyptus are recently recognized as important particulate matter dust filters. Eucalyptus also provide overwintering cover for dwindling Monarch butterfly (*Danaeus plexippus*) populations. Any removal of eucalyptus or other tree stands should be considered a unmitigated significant impact.

(d) Interfere with the movement of resident or migratory fish or wildlife species, or factors, which could hinder the normal activities of wildlife.

[19] County of San Luis Obispo, Department of Agriculture. August 10, 2009. (Staff Report, at p. 128.)
[20] *Ibid.*
[21] Staff Report, at p. 1.

Eucalyptus are necessary for the migration and movement of the Monarch butterfly (*Danaeus plexippus*). Any removal of eucalyptus could hinder Monarch populations.

(e) Conflict with any regional plans or policies to protect sensitive species, or regulations of the California Department of Fish & Wildlife or U.S. Fish & Wildlife Service.

The Monarch butterfly (*Danaeus plexippus*) is considered a "threatened phenomenon" by the state and "rare" under CEQA Guidelines Section 15380 because of declining availability of winter habitat. Thinning or removal of eucalyptus should be considered an unmitigated significant impact.

11. RECREATION

(b) Affect the access to trails, parks or other recreation opportunities.

The project adds sensitive receptors in an area impacted and in non-attainment for PM_{10} and $PM_{2.5}$, which the APCD (and the *Mesa Community Alliance*) lawsuit allege originates from OHV use at Oceano Dunes SVRA (ODSVRA). Since the passage of APCD Rule 1001, ODSVRA is under legal attack which could affect access to this state park (the ninth most popular state park in California). This conflict should be considered a significant impact until the legal issues have been resolved.

16. MANDATORY FINDINGS OF SIGNIFICANCE

(a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

The Monarch butterfly (*Danaeus plexippus*) is considered a "threatened phenomenon" by the state and "rare" under CEQA Guidelines Section 15380 because of declining availability of winter habitat. Thinning or removal of eucalyptus should be considered an unmitigated significant impact.

(b) Have impacts that are individually limited, but cumulatively considerable. ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The project has "cumulatively considerable" impacts in relation to: (1) Particulate matter emissions in a non-attainment area; (2) Will increase the number of sensitive receptors in a non-attainment area; (3) May cumulatively degrade Monarch butterfly (*Danaeus plexippus*) habitat.

(c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

Again, the project will produce fugitive particulate matter dust in a region already in non-attainment for these criteria pollutants (PM_{10} and $PM_{2.5}$). The project will add additional sensitive receptors to an area already in non-attainment and for which the APCD and Health Department frequently issue health warnings for sensitive receptors.

PROJECT CONDITIONS BEING APPEALED (OR REQUESTED TO BE ADDED)

MITIGATIONS—AIR QUALITY

38(s) AQ-3 Fugitive PM10 Mitigation Measures
The enumerated mitigation measures, *i* through *ix*, omit two mitigations required by the APCD in their review.[22] These two mitigations should be restored, as follows:

- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.

Additional particulate matter mitigations should include:

- Disclosure to prospective buyers of the project area's particulate matter non-attainment status, and that the region is subject to strong wind events which cause blowing fugitive dust, sand, and particulate matter.
- Disclosure to prospective buyers of both the APCD and Health Department positions regarding health and sensitive receptors; and, disclosure of APCD programs offering air quality forecasts and educational resources.

PROJECT SITE SOILS ARE "OCEANO SAND", SUSCEPTIBLE TO BLOWING
The County Department of Agriculture has determined, "The site's soils and soils throughout the Mesa consist of *Oceano sand*... These soil types extend through most of the Mesa east to Highway 101. ... The main limitations of this soil are its rapid permeability, low water holding capacity, and susceptibility to soil blowing."[23]

The project's disturbance of 40 acres will emit considerable particulate matter. Because site soils are not only susceptible to blowing, but are also poor in water retention, fugitive dust mitigations utilizing water will have little to no effect. It is not possible for water trucks or sprinklers to keep soil adequately moist during wind events (see Figure 4). These soils dry and become wind-entrained in mere minutes.

APCD SHOULD PRODUCE NIPOMO MESA DUST/HEALTH COMPLAINTS ON FILE
The APCD accepts and responds to air quality complaints from residents. Such complaints may include illegal burning, odors, and any other matter related to air quality.

In 2013, activists on the Nipomo Mesa circulated the APCD's complaint form[24] and encouraged the filing of complaints pertaining to particulate matter and/or dust. The numbers, types, and locations of any pertinent complaints should be produced and evaluated in reviewing whether emissions from this project constitute a potentially significant impact.

[22] Staff Report, at p. 145.
[23] County of San Luis Obispo, Department of Agriculture. August 10, 2009. (Staff Report, at p. 128.)
[24] http://www.slocleanair.org/images/cms/upload/files/community/pdfs/complaintwebform.pdf

CONDITIONAL USE PERMIT FINDINGS NOT SUPPORTABLE
The following findings[25] pertaining to the Conditional Use Permit (CUP) are not supportable:

Finding A (Environmental Determination)
The project has numerous significant effects on the environment, most prominently, emission of particulate matter fugitive dust in a non-attainment area. Also, potential impacts to Monarch butterfly populations and migratory birds if any trees are removed.

Finding D (Detriment to health, safety or welfare)
The project both emits particulate matter fugitive dust and will introduce new sensitive receptors into a non-attainment area considered unhealthy for sensitive receptors by the APCD and County Health Department.

Finding E (Project inconsistent with neighborhood or conflict with surrounding land and uses)
The project is inconsistent with surrounding agricultural use as well as Oceano Dunes SVRA (as long as legal disputes and litigation pertaining to particulate matter continue). Local Cypress Ridge I residents have brought "dust nuisance" litigation against the county. Clearly there is an undisputed conflict at this time.

Finding F (Traffic volume)
The project may generate traffic that conflicts with local agriculture operations, creating an unsafe conflict between residential users and slow-moving farm vehicles.

RECOMMENDATIONS
The following recommendations are requested of the Board of Supervisors in its consideration of this appeal of the Cypress Ridge II project:

- Direct a *de novo* review of the project by the APCD and recommend involvement of the APCD's legislative body (the APCD Board). The political, regulatory, and status quo landscape in regards to air quality on the Nipomo Mesa has radically changed since the APCD submitted comments on the project in 2008. The APCD Board should be involved because the subject of particulate matter on the Nipomo Mesa includes ongoing litigation against the APCD and complex ongoing negotiations between the APCD and numerous other state and local agencies.

- Deny the Mitigated Negative Declaration and uphold the instant appeal.

- Make a finding that Potentially Significant Impacts exist, and that a full Environmental Impact Report (EIR) is necessary.

- Direct further and complete review of all the points and impacts discussed herein, or brought to light in the future by staff, deliberation, or public comment.

- Consider (and recommend to the APCD Board to consider) developing a holistic particulate matter solution pertaining to air quality conditions on the Nipomo Mesa, to include remediation of cumulative particulate emitters and prohibiting an increase in the population of sensitive receptors.

[25] Staff Report, at p. 27.

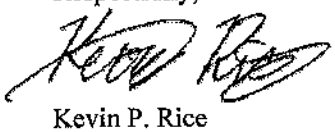
- The County and APCD should consider development of new region-wide standards and mitigation practices for the Nipomo Mesa that will achieve negative particulate matter emissivity for new projects.

- The county and APCD should consider undertaking the 2007 APCD recommendation to address dirt road emissions, and should restore environmental monitoring and compliance at Woodlands and any other applicable projects.

CONCLUSION

For all of the reasons herein, and for any good cause shown which emerges later, the Mitigated Negative Declaration for the Cypress Ridge, L.P. project, file number SUB2008-00028, should be denied and the instant appeal upheld by the Board of Supervisors. Without significant revision and modification, a finding that the project can mitigate all "potentially significant impacts" cannot be made and a full Environmental Impact Report (EIR) should be required.

Respectfully,



Kevin P. Rice
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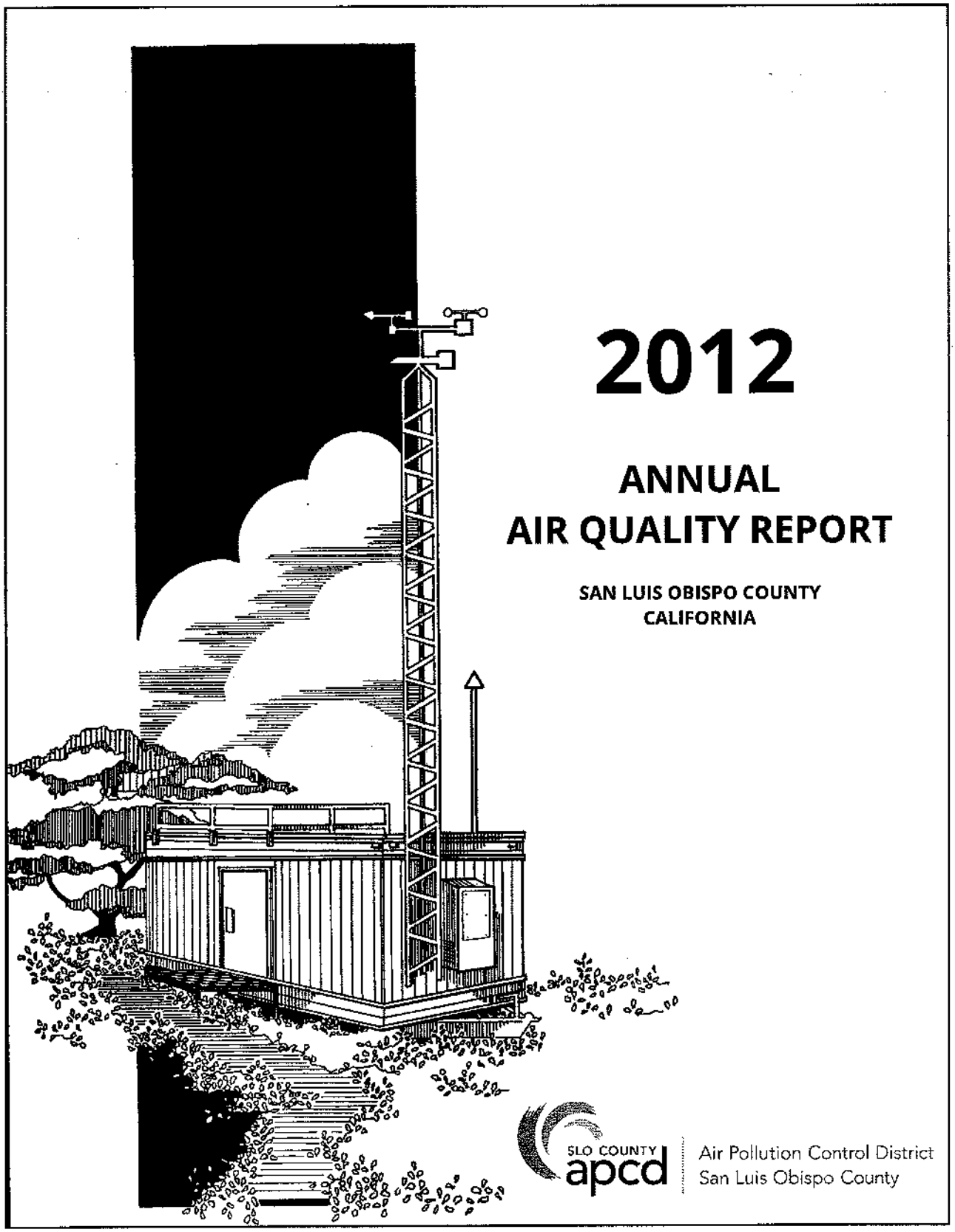
Attachment A: APCD 2012 Annual Air Quality Report



2012

ANNUAL AIR QUALITY REPORT

SAN LUIS OBISPO COUNTY
CALIFORNIA

SLO COUNTY apcd
Air Pollution Control District
San Luis Obispo County

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN LUIS OBISPO

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2012 Annual Air Quality Report
Published November 2013
By Compliance and Monitoring Division
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2012 Air Quality Summary

While urban and suburban areas of San Luis Obispo County enjoyed smog-free air in 2012, ozone levels exceeding both federal and state standards were measured on numerous days in the rural eastern portion of the county. This area (Figure 1) was designated as a nonattainment zone for the federal ozone standard in May 2012. As discussed in Appendix A, the available evidence suggests these exceedences—like those observed in earlier years—were caused by the transport of ozone and ozone precursors from outside of the county, rather than by emissions originating within the county.

Smoke from wildfires can often adversely affect air quality. The Turkey Fire burned 2700 acres near Parkfield in Monterey County from July 9-11, 2012; as shown in Table 3, the three highest 8-hour ozone concentrations at Red Hills were observed on July 10, 11, and 12, and the two highest 8-hour ozone levels at Carrizo Plains were observed on July 11 and 12. In addition, the single highest 8-hour levels for Paso Robles and Atascadero were both observed on July 12. Several of the highest 1-hour ozone concentrations observed at Red Hills, Carrizo Plains, Atascadero, and Paso Robles also occurred during this period.

The Billy Fire, near Santa Nella in Merced County burned 434 acres on May 31. The third highest 8-hour and 1-hour ozone concentrations were observed at Carrizo Plains the following day, and back trajectories from this site for June 1 extend over the fire area. (See Appendix A and Figure A14.)

A third notable fire this year was the Coon Creek Fire in Montaña de Oro State Park, which burned from November 13-15, a short distance from several monitoring stations in the county. The Morro Bay and Nipomo Regional Park stations both recorded their highest hourly nitrogen dioxide (NO_2) levels during this period. Ozone and particulate levels were not elevated at any nearby stations, except possibly at San Luis Obispo, which recorded its highest 24-hour $PM_{2.5}$ value for the month on the 13th.

South County air quality continues to be impacted by dust blown from the Oceano Dunes area along the coast. Three exceedences of the federal PM_{10} standard occurred in 2012 (all at CDF), and numerous exceedences of the state standard were recorded at the Mesa2, CDF, and Nipomo Regional Park monitoring sites, all located on the Nipomo Mesa. In addition, the federal 24-hour $PM_{2.5}$ standard was exceeded three times on the Nipomo Mesa. These exceedences of the federal PM_{10} and $PM_{2.5}$ standards all occurred in May and June when strong winds blew from the northwest and swept across the Oceano Dunes State Vehicular Recreation Area. Such wind conditions and the high levels of particulates that result are typical in this area. See Appendix B for details. The South County Community Monitoring Project report,[1] released in January 2013, evaluated data collected from 23 temporary PM_{10} monitors deployed on the Nipomo Mesa and in Oceano during the spring of 2012; this study found that during high wind events the dust plume from the dunes extends south to at least the Santa Maria River and east beyond Highway 101. APCD Rule 1001 was adopted by the Board in November 2011 and is being implemented to address the dust emissions from the dunes and improve air quality in this area.

As shown in Table 4, the highest daily PM_{10} concentrations recorded at San Luis Obispo, Atascadero, and Paso Robles all exceeded the state 24-hour PM_{10} standard of 50 $\mu g/m^3$. The only exceedence recorded at San Luis Obispo occurred on May 23, the same day that CDF recorded its highest level for the year and very strong winds blew out of the northwest. Both of the Atascadero exceedences and one of the two Paso Robles exceedences occurred on cold January days with stagnant (i.e. low wind) conditions and sub-freezing nighttime temperatures, which suggest residential wood burning as the likely cause.

[1] San Luis Obispo County Air Pollution Control District, January 2013. South County Community Monitoring Project. San Luis Obispo, Calif. http://www.slocleanair.org/images/cms/upload/files/Final%20Report.pdf

The air quality database for San Luis Obispo County is a public record and is available from the San Luis Obispo County Air Pollution Control District (SLOAPCD) office in various forms, including comprehensive records of all hourly or other sample values acquired anywhere in the county. Data summaries are published in Annual Air Quality Reports like this one. Ozone summary data appear weekly in the Saturday edition of the San Luis Obispo County Tribune, a local newspaper. Each month's data from ambient monitoring is added to separate archives maintained by the federal Environmental Protection Agency (EPA) and by the Air Resources Board (ARB). Summary data from San Luis Obispo County can be found in EPA and ARB publications and on the world wide web at the following websites:

www.slocleanair.org
SLOAPCD website
www.arb.ca.gov
ARB website
www.epa.gov
US EPA website
www.airnow.gov
Air Quality Index site

Air Quality Monitoring

San Luis Obispo County air quality was measured by a network of ten ambient air monitoring stations in 2012; station locations are depicted in Figure 1. The SLOAPCD operated seven permanent stations: Nipomo Regional Park, Grover Beach, Morro Bay, Atascadero, Red Hills, Carrizo Plains and the CDF fire station on the Nipomo Mesa. The California Air Resources Board (ARB) operated stations at San Luis Obispo and Paso Robles. One station on the Nipomo Mesa, Mesa2, was operated by the District for the ConocoPhillips refinery. See Table 2 for a summary of the pollutants monitored at each station.

Air quality monitoring is rigorously controlled by federal and state quality assurance and quality control procedures and subject to annual equipment and data audits to ensure data validity. Gaseous pollutant levels are measured every few seconds and averaged to yield hourly values. Particulate matter ($PM_{2.5}$ and PM_{10}) is sampled hourly using Beta Attenuation Monitors (BAMs). These instruments have been approved as Federal Equivalent Methods (FEMs) by the Environmental Protection Agency (EPA).

The dataset reviewed in this report was downloaded from the EPA's Air Quality System (AQS) database in June 2013. Prior to being uploaded to AQS, all data were thoroughly reviewed and validated by the collecting agency (i.e. ARB for data from Paso Robles and San Luis Obispo and SLOAPCD for all other sites).

Figure 1: Map of San Luis Obispo County

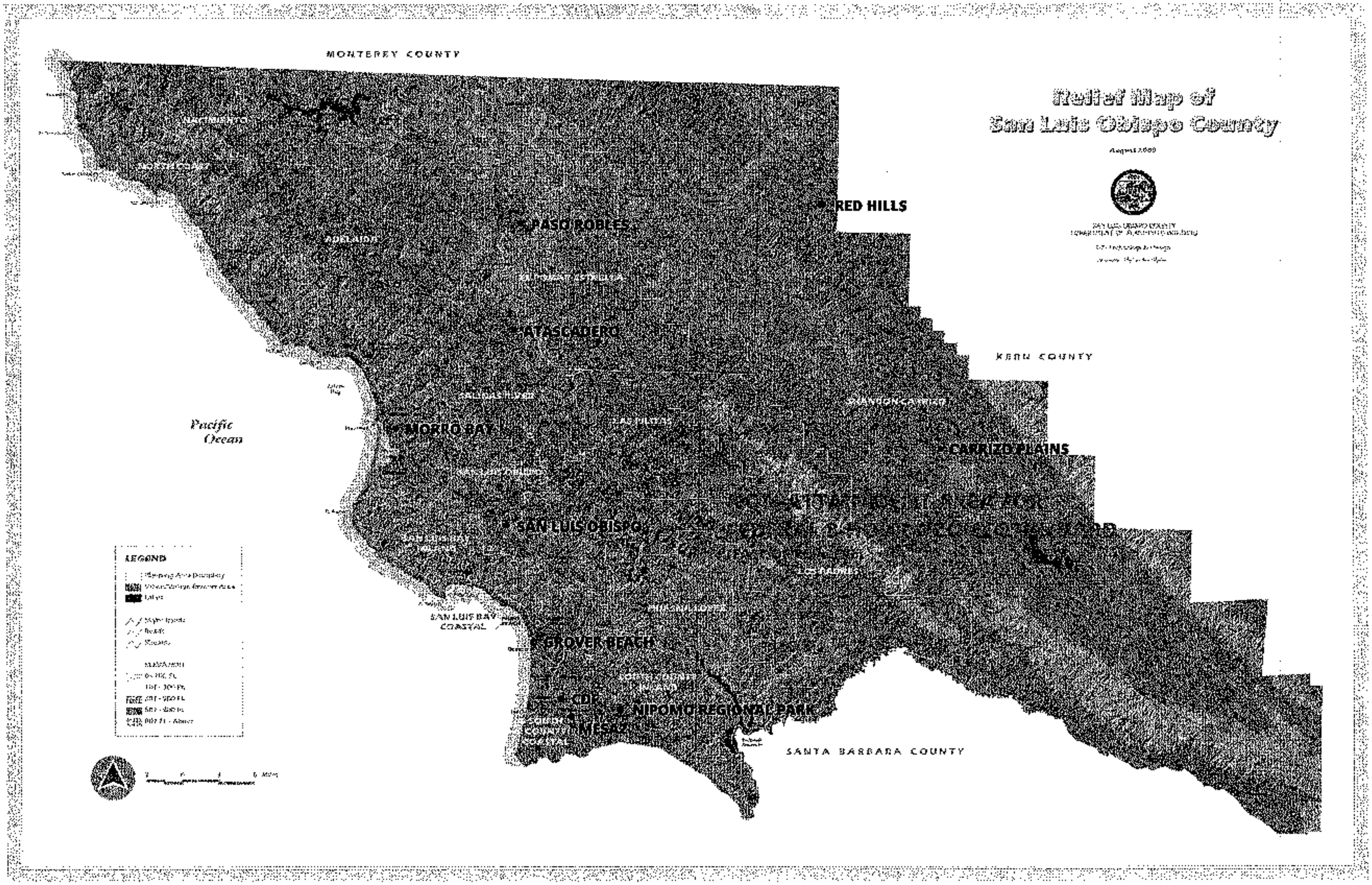


Table 1: Ambient Air Quality Parameters Monitored in SLO County in 2012

	O_3	NO	NO_2	NO_x	SO_2	CO	PM_{10}	$PM_{2.5}$	WS	WD	ATM
SLOAPCD Permanent Stations											
Atascadero	X	X	X	X			X	X	X	X	X
Morro Bay	X	X	X	X					X	X	
Nipomo Regional Park	X	X	X	X			X		X	X	X
Red Hills	X								X	X	X
Carrizo Plains	X								X	X	X
CDF							X	X	X	X	
Grover Beach									X	X	
ARB Stations											
San Luis Obispo	X						X	X	X	X	X
Paso Robles	X						X		X	X	X
Operated by SLOAPCD											
Mesa2, Nipomo					X		X	X	X	X	X

Acronyms:

O_3	Ozone	SO_2	Sulfur Dioxide	PM_{10}	Particulates < 10 microns	WS	Wind Speed
NO	Nitric Oxide	CO	Carbon Monoxide	$PM_{2.5}$	Particulates < 2.5 microns	WD	Wind Direction
NO_2	Nitrogen Dioxide					ATM	Ambient Temp
NO_x	Oxides of Nitrogen						

Ambient Air Pollutants Of Local Concern

*While ground level **ozone** is harmful to plants and animals and is considered a pollutant, upper level (stratospheric) ozone occurs naturally and protects the earth from harmful ultra-violet energy from the sun.*

Ozone

Ozone is a gas that is naturally found near the earth's surface at low concentrations, typically 10 to 40 parts per billion (ppb). It is also a principle component of photochemical smog, produced when precursor pollutants such as volatile organic compounds and nitrogen oxides react under the influence of sunlight. Ozone precursors are emitted by many human activities, but industrial processes and the wide use of motor vehicles are the primary sources. The chemistry of atmospheric ozone is complex, and in the absence of sunlight ozone is destroyed by reaction with the same precursor molecules that fuel its formation during the day. As a result, ozone concentrations typically increase as sunlight intensity increases, peaking midday or in the afternoon, and bottoming out in the early morning hours and around sunrise, as shown in the example below.

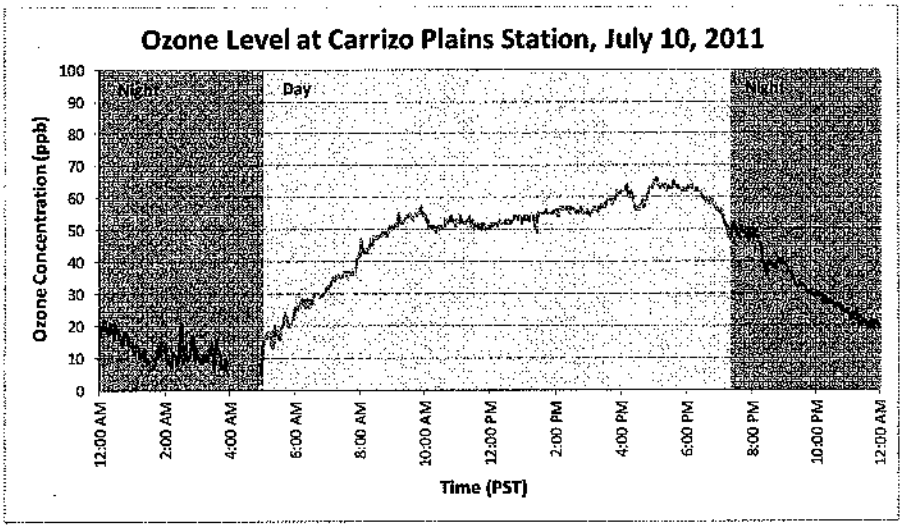


Figure 2: Example of Diurnal Ozone Pattern

As a pollutant, ozone is a strong oxidant gas that attacks plant and animal tissues. It can cause impaired breathing and reduced lung capacity, especially among children, athletes, and persons with compromised respiratory systems; it can also cause significant crop and forest damage. Ozone is a pollutant of particular concern in California where geography, climate, and high population densities contribute to frequent violations of health-based air quality standards.

*Research suggests that **fine particulate matter** is much more detrimental to human health than previously thought. In addition, it can greatly reduce visibility.*

Particulate Matter

Ambient air quality standards have been established for two classes of particulate matter: PM_{10} (respirable particulate matter less than 10 microns in aerodynamic diameter), and $PM_{2.5}$ (fine particulate matter 2.5 microns or less in aerodynamic diameter). Both consist of many different types of particles that vary in their chemical activity and toxicity. $PM_{2.5}$ tends to be a greater health risk since these particles cannot be removed from the lungs

NO_2 and SO_2 create aerosols, which may fall as acid rain causing damage to crops, forests, and lakes. They can also exacerbate asthma and harm the human respiratory system.

***CO** is a colorless, odorless gas that can lower the blood's ability to carry oxygen.*

once they have been deeply inhaled. Sources of particulate pollution include diesel exhaust; mineral extraction and production; combustion products from industry and motor vehicles; smoke from open burning; paved and unpaved roads; condensation of gaseous pollutants into liquid or solid particles; and wind-blown dust from soils disturbed by demolition and construction, agricultural operations, off-road vehicle recreation, and other activities.

Nitrogen Dioxide, Sulfur Dioxide, and Carbon Monoxide

Nitrogen dioxide (NO_2) is the brownish-colored component of smog. NO_2 irritates the eyes, nose and throat, and can damage lung tissues. Sulfur dioxide (SO_2) is a colorless gas with health effects similar to NO_2. Both pollutants are generated by fossil fuel combustion from mobile sources such as vehicles, ships, and aircraft and at stationary sources such as industry, homes, and businesses. SO_2 may also be emitted by petroleum production and refining operations.

Carbon monoxide (CO) can cause headaches and fatigue and results from fuel combustion of all types. Motor vehicles are by far the chief contributor of CO in outdoor air.

State and National Ambient Air Quality Standards

California and the federal EPA have adopted ambient air quality standards for six common air pollutants of primary public health concern: ozone, particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), and lead. These are called "criteria pollutants" because the standards establish permissible airborne pollutant levels based on criteria developed after careful review of all medical and scientific studies of the effects of each pollutant on public health and welfare.

The National Ambient Air Quality Standards (NAAQS; see Table 2) are used by EPA to designate a region as either "attainment" or "non-attainment" for each criteria pollutant. A non-attainment designation can trigger additional regulations for that region aimed at curbing pollution levels and bringing the region into attainment. For most pollutants, the NAAQS allow a standard to be exceeded a certain number of times each calendar year without resulting in a non-attainment designation. Additionally, exceedences caused by exceptional events (see below) may be excluded from attainment/non-attainment determinations at the discretion of the EPA.

In May 2012 the EPA designated the eastern portion of our county as marginally non-attainment for the 8-hour ozone standard based on enhanced monitoring over the last decade that revealed previously unrecognized elevated ozone levels in that region; the western portion of the county retained its attainment status. (See Figure 1 for a map showing the boundary between the attainment and non-attainment areas.) The county is currently designated attainment for all of the other NAAQS; we do, however, exceed the federal 24-hour standard for PM_{10} on the Nipomo Mesa and could be designated nonattainment for that pollutant if exceedances continue.

The California Ambient Air Quality Standards are generally more restrictive (i.e. lower) than the NAAQS. As a result, San Luis Obispo County is designated as a non-attainment area for the state one-hour and 8-hour ozone standards, as well as the state 24-hour and annual PM_{10} standards.

The state and national standards for NO_2 have never been exceeded in this county. The state standard for SO_2 was exceeded periodically on the Nipomo Mesa up until 1993. Equipment and processes at the facilities responsible for the emissions were upgraded as a result, and the state SO_2 standard has not been exceeded since that time. Exceedences of the federal SO_2 standard have never been measured here. State CO standards have not been exceeded in San Luis Obispo County since 1975.

Exceptional Event Documentation

Exceptional Events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable or preventable and are unlikely to recur at a particular location. Thus, air quality monitoring data influenced by exceptional events can sometimes be excluded from regulatory determinations related to violations of the NAAQS, if recommended by the SLOAPCD and approved by the EPA. As mentioned in the summary above, two of the fires that occurred in 2012 could potentially qualify as exceptional events if we could demonstrate they were responsible for the ozone exceedances we experienced following those fires. However, the analysis and documentation required for such submittals is quite extensive, and EPA concurrence would not change our nonattainment status due to the numerous other exceedances measured at those locations that were not influenced by the fires. Thus, the SLOAPCD has not submitted any exceptional event documentation for 2012 to the EPA and does not expect any data compiled in this report to be excluded from future attainment determinations.

Table 2: Ambient Air Quality Standards for 2012 and Attainment Status*

***A standard exceedence** occurs when a measured value meets exceedence criteria prescribed by state or federal agencies. It does not necessarily constitute a violation.*

***A standard violation** may occur following a single or cumulative series of standard exceedences. Criteria constituting a violation are unique for each pollutant and may result in changes to an area's attainment status.*

	Averaging Time	California Standard†	National Standard†
Ozone (O_3)	8 Hours	**70 ppb**	**75 ppb**
	1 Hour	**90 ppb**	
Respirable Particulate Matter (PM_{10})	24 Hours	**50 µg/m³**	150 µg/m³
	1 Year‡	**20 µg/m³**	
Fine Particulate Matter ($PM_{2.5}$)	24 Hours		35 µg/m³
	1 Year‡	12 µg/m³	15 µg/m³§
Carbon Monoxide (CO)	8 Hours	9.0 ppm	9 ppm
	1 Hours	20 ppm	35 ppm
Nitrogen Dioxide (NO_2)	1 Year‡	30 ppb	53 ppb
	1 Hour	180 ppb	100 ppb
Sulfur Dioxide (SO_2)	3 Hours		500 ppb (secondary)
	1 Hour	250 ppb	75 ppb (primary)
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm	
Visibility	8 Hours	Sufficient amount to reduce the prevailing visibility to less than ten miles when the relative humidity is less than 70 %.	

* Standards in **boldface print** are not attained in San Luis Obispo County as of July 2012.
† For clarity, the ozone, SO_2, and NO_2 standards are expressed in parts per billion (ppb), however most of these standards were promulgated in parts per million (ppm).
‡ This standard is calculated as the annual arithmetic mean.
§ The national standard for $PM_{2.5}$ annual arithmetic mean was lowered in March 2013 to12 µg/m³.

Ozone and Gaseous Pollutant Data Summary

Countywide, 11 days exceeded the federal 8-hour ozone standard of 75 parts per billion (ppb) in 2012, with ten exceedence days recorded at the Red Hills station and three at Carrizo Plains. Exceedence of the more stringent state 8-hour ozone standard of 70 ppb occurred on 34 days, with 30 days at Red Hills and 14 at Carrizo Plains. The state one-hour standard of 90 ppb was exceeded only once; this was at Carrizo Plains.[2] None of the other eight monitoring stations in the County recorded any exceedences of state or federal ozone standards.

Standards for sulfur dioxide and nitrogen dioxide were not exceeded in the county.

Gaseous Pollutants: First, Second and Third Highest Hourly Averages

The following table lists the highest hourly (and for ozone, 8-hour) values recorded in 2012 for ozone, sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) at the stations where they are monitored. Concentrations are in parts per billion (ppb). Sampling date and hour appear under each pollutant value in the format "month/day: hour." All times are PST; for 8-hour averages, the hour listed is the beginning hour. Values that exceed state or federal standards are shown in **bold**.

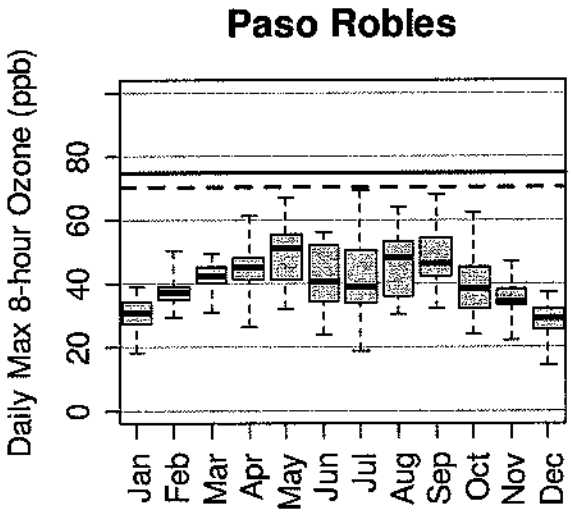
Table 3: Highest Hourly Averages for Gaseous Pollutants in 2012

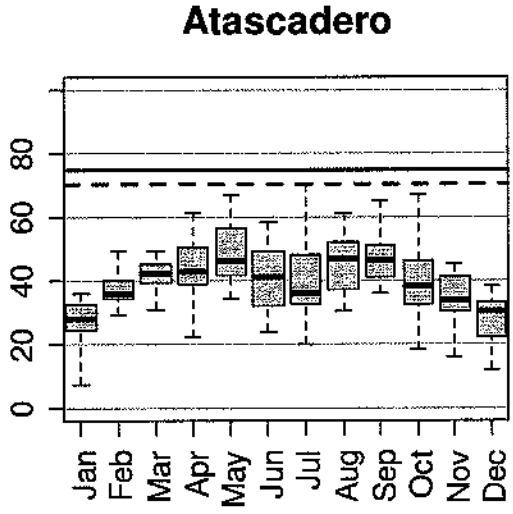
Station	O_3 1-hour			O_3 8-hour			SO_2			NO_2		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
Paso Robles	81 07/11:12	80 09/27:15	78 07/12:17	69 07/12:13	68 09/27:11	67 05/09:10						
Atascadero	83 07/11:11	79 07/12:16	78 10/02:11	70 07/12:12	67 05/09:10	67 10/02:10				42 03/08:19	42 11/06:18	41 01/12:17
Morro Bay	59 10/01:09	55 04/13:07	54 10/02:14	52 04/13:11	51 05/02:17	50 03/17:09				48 11/14:17	43 11/06:18	37 10/02:07
San Luis Obispo	70 10/01:10	62 10/02:14	59 04/09:14	56 10/01:09	55 10/02:10	52 05/06:10						
Red Hills	90 07/11:08	89 07/12:05	88 10/02:03	**87** 07/11:04	**86** 07/12:04	**81** 07/10:22						
Carrizo Plains	**92** 07/11:15	86 07/10:11	83 06/01:09	**85** 07/11:09	**82** 07/10:09	**79** 06/01:08						
Nipomo Regional Park	65 10/01:15	63 10/02:14	60 10/15:21	59 10/01:09	58 10/02:09	54 05/05:07				32 11/13:19	31 01/19:07	31 11/13:18
Mesa2, Nipomo							7 06/29:00	5 03/08:14	5 03/28:23			

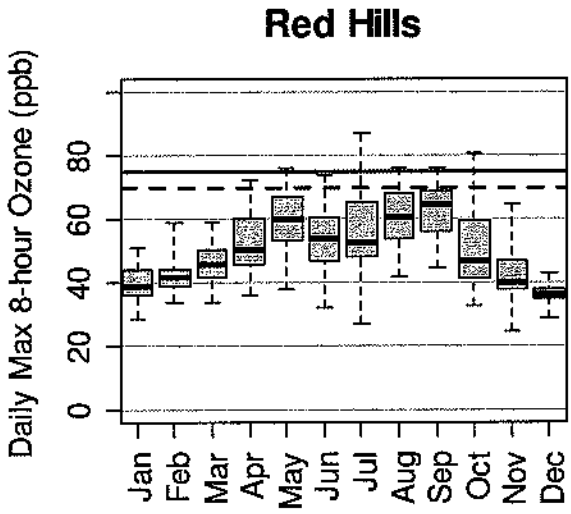
[2] Due to how ARB handles significant digits, the value 92 ppb observed at Carrizo Plains does not officially exceed the state 1-hour standard of 0.09 ppm. (For comparison to the standard, this value is first converted to 0.092 ppm, and then rounded to the nearest hundredth of a ppm, or 0.09 ppm. Since this value equals but does not exceed the standard, it is not technically an exceedence.) Applying ARB's rules for handling significant digits to the state 8-hour standard, there were 33 exceedences at Red Hills and 18 at Carrizo Plains.

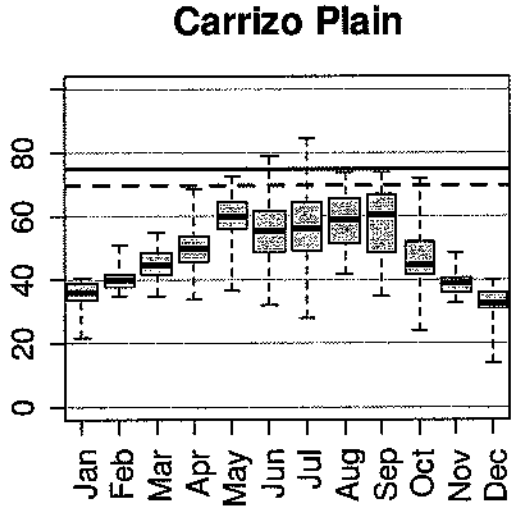
Monthly Ozone Summary

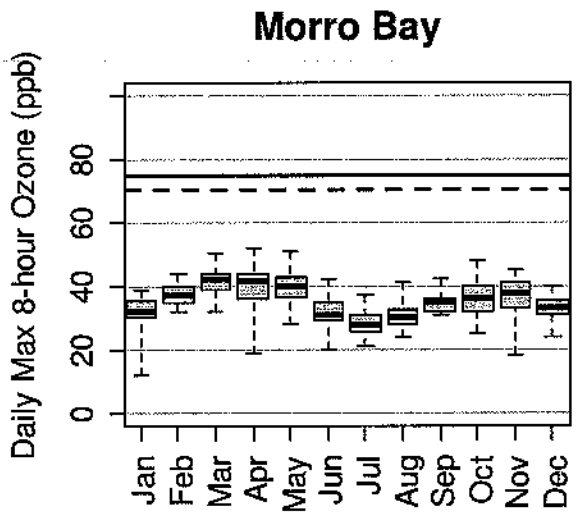
The following graphs depict monthly ozone variation during 2012 at the seven monitoring stations in the county where this pollutant is monitored. In these "box and whisker" plots, the top and bottom of each box show the 75th and 25th percentile daily maximum 8-hour averages for each month, the heavy horizontal bar marks the median, and the dotted lines (the whiskers) extend to the maximum and minimum values. In other words, the highest 25% of values for the month are between the level bounded by the top of the box and the upper whisker; the next 25% fall between the heavy horizontal line and the top of the box; the next 25% between the heavy line and the bottom of the box; and the lowest 25% fall between the bottom of the box and the lower whisker. The solid red line marks the federal 8-hour standard of 75 ppb, and the dashed red line below it marks the state 8-hour ozone standard of 70 ppb.

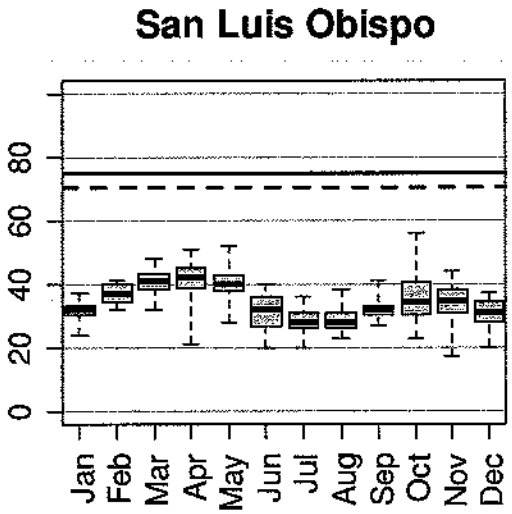









Morro Bay
Daily Max 8-hour Ozone (ppb)
0
20
40
60
80
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


San Luis Obispo
0
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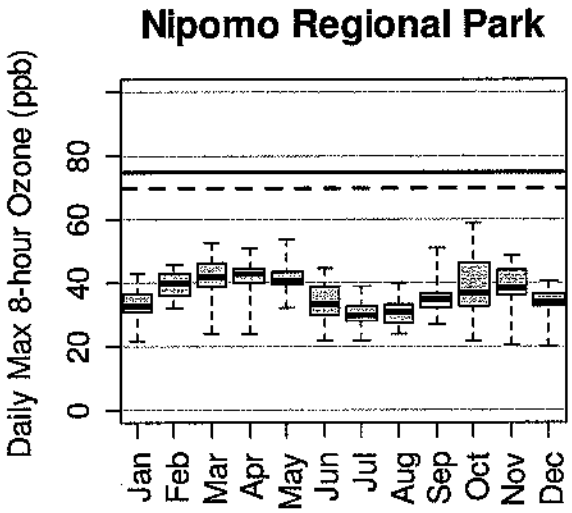
Nipomo Regional Park
Daily Max 8-hour Ozone (ppb)
0
20
40
60
80
Jan
Feb
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May
Jun
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Aug
Sep
Oct
Nov
Dec

Particulate Matter Data Summary

Countywide, three days exceeded the federal 24-hour PM_{10} standard of 150 $\mu g/m^3$ in 2012; all were recorded at the CDF station. Exceedences of the state 24-hour PM_{10} standard of 50 $\mu g/m^3$ were observed on 72 different days: 70 at CDF, 36 at Mesa2, 9 at NRP, 2 each at Atascadero and Paso Robles, and once at San Luis Obispo.[3] All sites on the Nipomo Mesa (NRP, CDF, and Mesa2) exceeded the state annual average PM_{10} standard of 20 $\mu g/m^3$, while the rest of the county remained below this level.[4]

This year, the federal 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ was exceeded three times at CDF and once at Mesa2. The federal and state standards for annual average $PM_{2.5}$ concentration were not exceeded anywhere in the county.

The following table lists the highest 24-hour concentrations recorded in 2012 (and the dates on which they occurred) as well as the annual means for PM_{10} and $PM_{2.5}$ for all stations where these pollutants were monitored. Values exceeding state or federal standards are shown in bold.

Table 4: Summary of PM_{10} and $PM_{2.5}$ Statistics for 2012

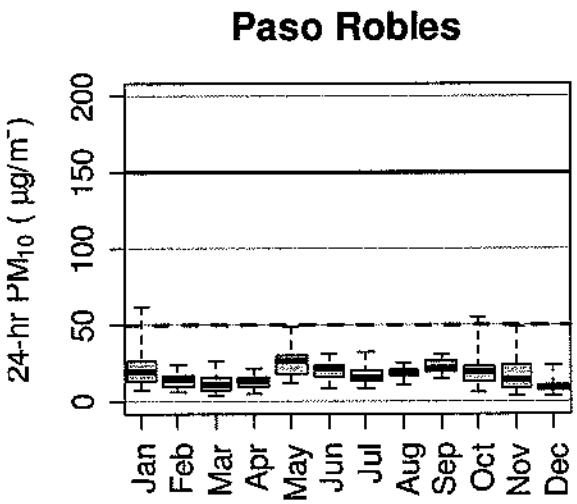
Station	PM_{10}		$PM_{2.5}$	
	Highest 24-hour Concentration	Annual Arithmetic Mean	Highest 24-hour Concentration	Annual Arithmetic Mean
Paso Robles	**61 $\mu g/m^3$** 01/13	17.5 $\mu g/m^3$		
Atascadero	**62 $\mu g/m^3$** 01/12	16.4 $\mu g/m^3$	33.7 $\mu g/m^3$ 01/12	6.0 $\mu g/m^3$
San Luis Obispo	**51 $\mu g/m^3$** 05/23	14.8 $\mu g/m^3$	15.4 $\mu g/m^3$ 05/18	6.1 $\mu g/m^3$
CDF, Arroyo Grande	**180 $\mu g/m^3$** 05/23	**33.6 $\mu g/m^3$**	**41.6 $\mu g/m^3$** 05/23	9.6 $\mu g/m^3$
Nipomo Regional Park	**75 $\mu g/m^3$** 06/08	**21.1 $\mu g/m^3$**		
Mesa2, Nipomo	**146 $\mu g/m^3$** 06/08	**25.1 $\mu g/m^3$**	**36.9 $\mu g/m^3$** 06/08	8.1 $\mu g/m^3$

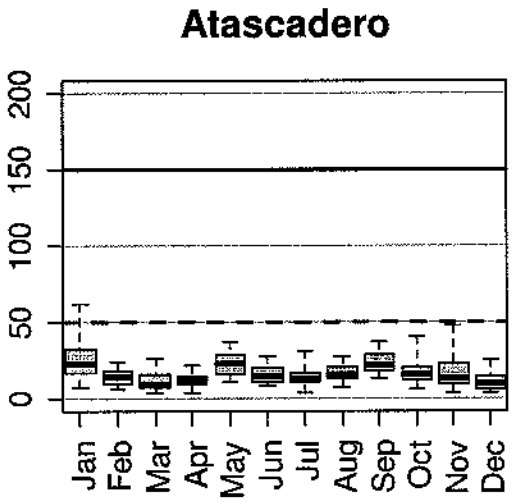
[3] Similar to the situation with ozone, ARB and EPA apply different conventions to the handling of significant digits. The ARB website (http://www.arb.ca.gov/adam/topfour/topfour1.php) thus counts 69 exceedences of the state PM_{10} standard at CDF, 41 at Mesa2, ten at Nipomo Regional Park, two each at Paso Robles and Atascadero, and four at San Luis Obispo. Some of the differences in exceedence counts between ARB and EPA may also be due to the presence of non-validated data in the ARB database.

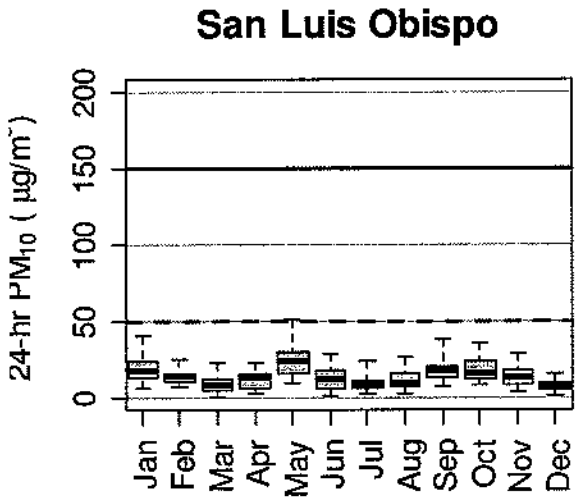
[4] With the exception of data from San Luis Obispo and Paso Robles, the PM_{10} measurements discussed in the text and shown in tables and graphs in this report are corrected to standard temperature and pressure (STP). This is to facilitate comparison to the PM_{10} NAAQS, which is defined in STP units. For the San Luis Obispo and Paso Robles stations, which are managed by ARB, only uncorrected PM_{10} data is available, and thus throughout this report uncorrected (so-called "local conditions") data is used for these stations. Differences between data corrected to STP and uncorrected local conditions data is generally very small, typically less than a few percent.

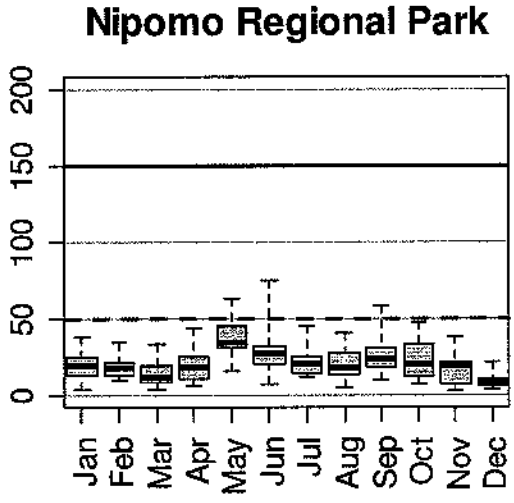
Monthly PM_{10} Summary

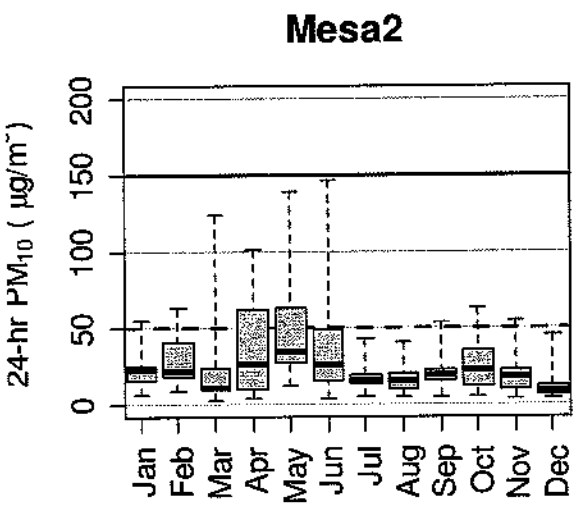
The graphs below summarize the 24-hour PM_{10} values from the seven stations where this pollutant was measured in 2012. As with ozone, the data are depicted using bar and whisker plots that mark the levels of the lowest, 25th percentile, median, 75th percentile, and highest concentrations recorded each month. The dashed and solid red lines mark the state and federal 24-hour standards of 50 and 150 µg/m^3, respectively.

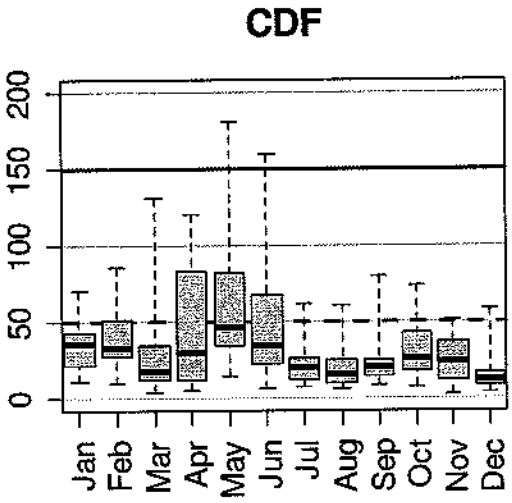






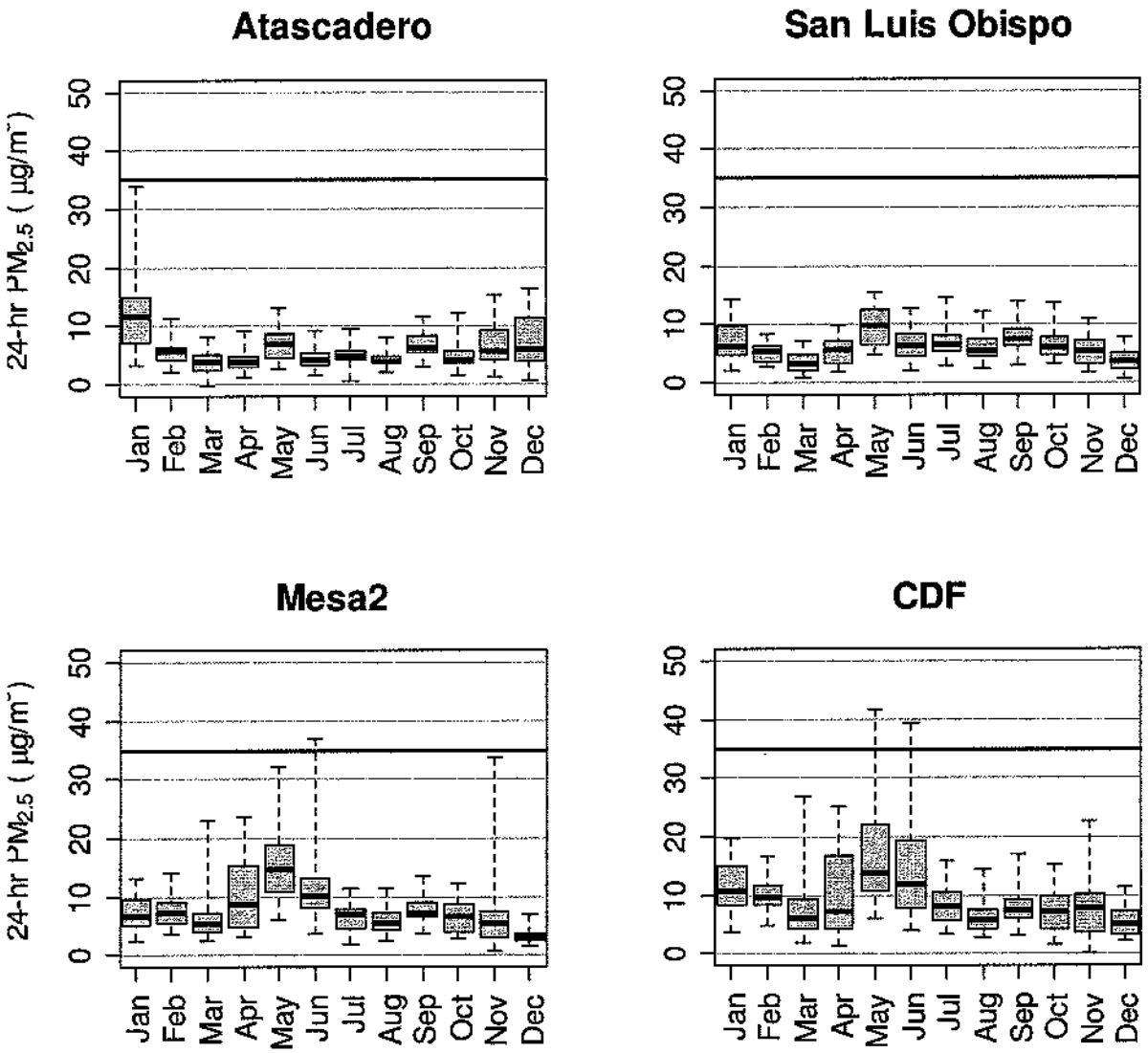



Mesa2
24-hr PM10 (µg/m˜)
0
50
100
150
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


CDF
0
50
100
150
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Monthly $PM_{2.5}$ Summary

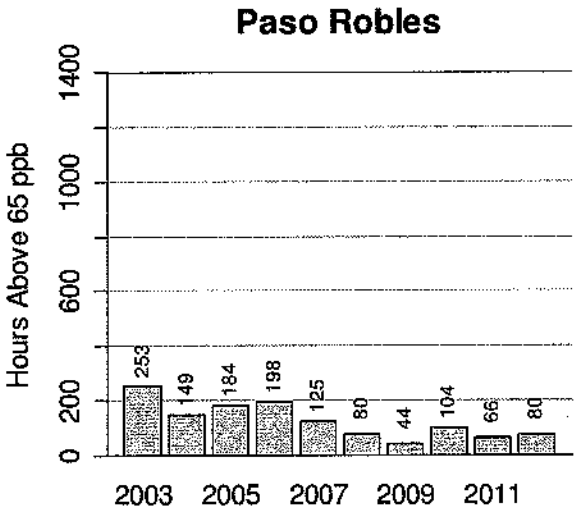
Monitoring for fine particulate matter ($PM_{2.5}$) was performed at four locations in 2012: San Luis Obispo, Atascadero, Mesa2, and CDF. The following graphs summarize 24-hr $PM_{2.5}$ values by site; the red line marks the federal 24-hour standard of 35 $\mu g/m^3$.

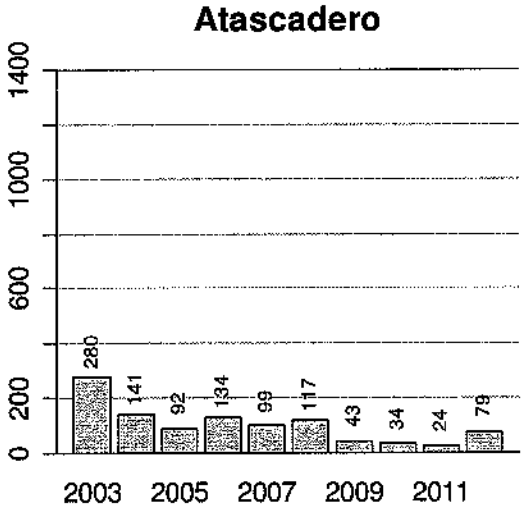


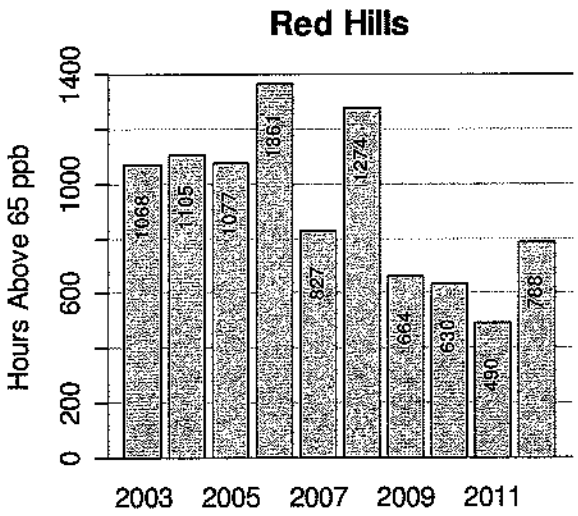
Trends

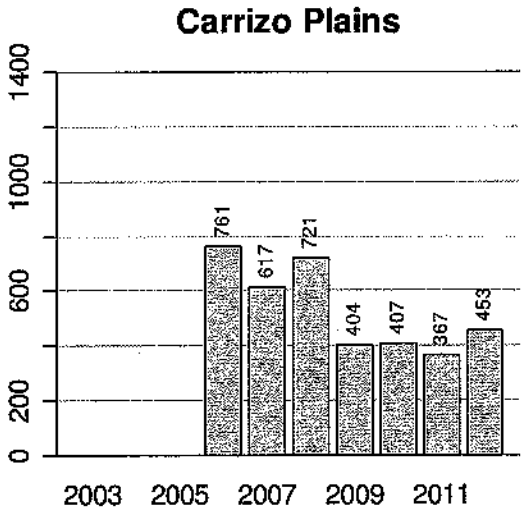
Countywide Ozone Trends, 2003 - 2012

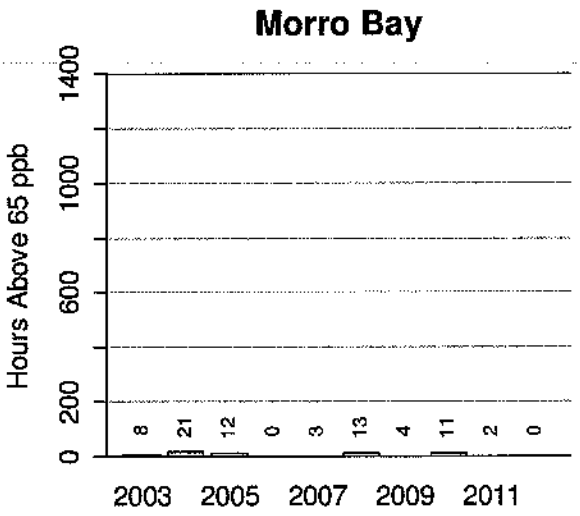
The following graphs depict ozone trends at seven locations within the county for the past ten years, except Carrizo Plains, where monitoring began in 2006. Each data bar represents the total number of hours in a given year during which the ozone concentrations was at or above 65 ppb. This is a useful indicator for trend purposes even though there are no health standards for single-hour exposures to this level of ozone.

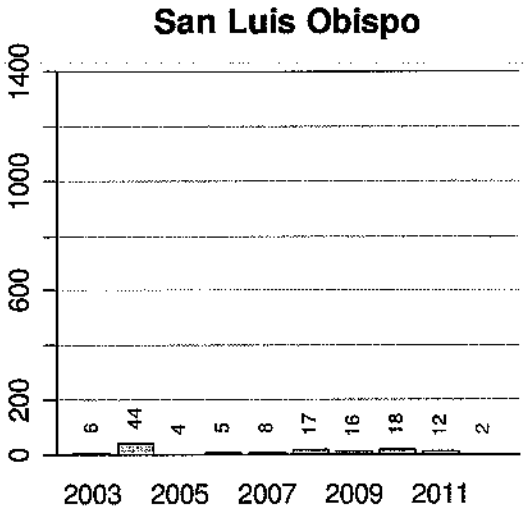


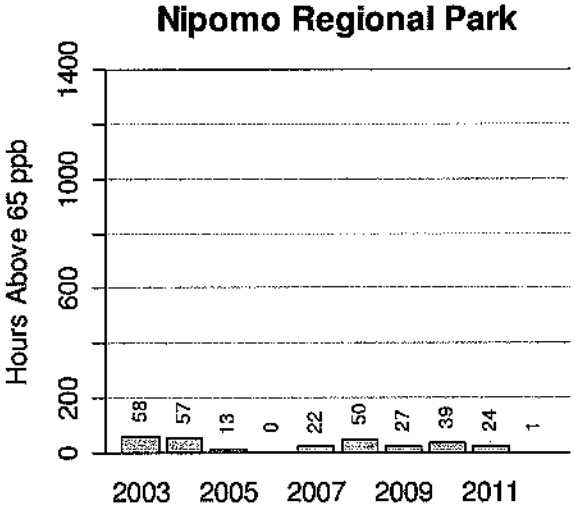






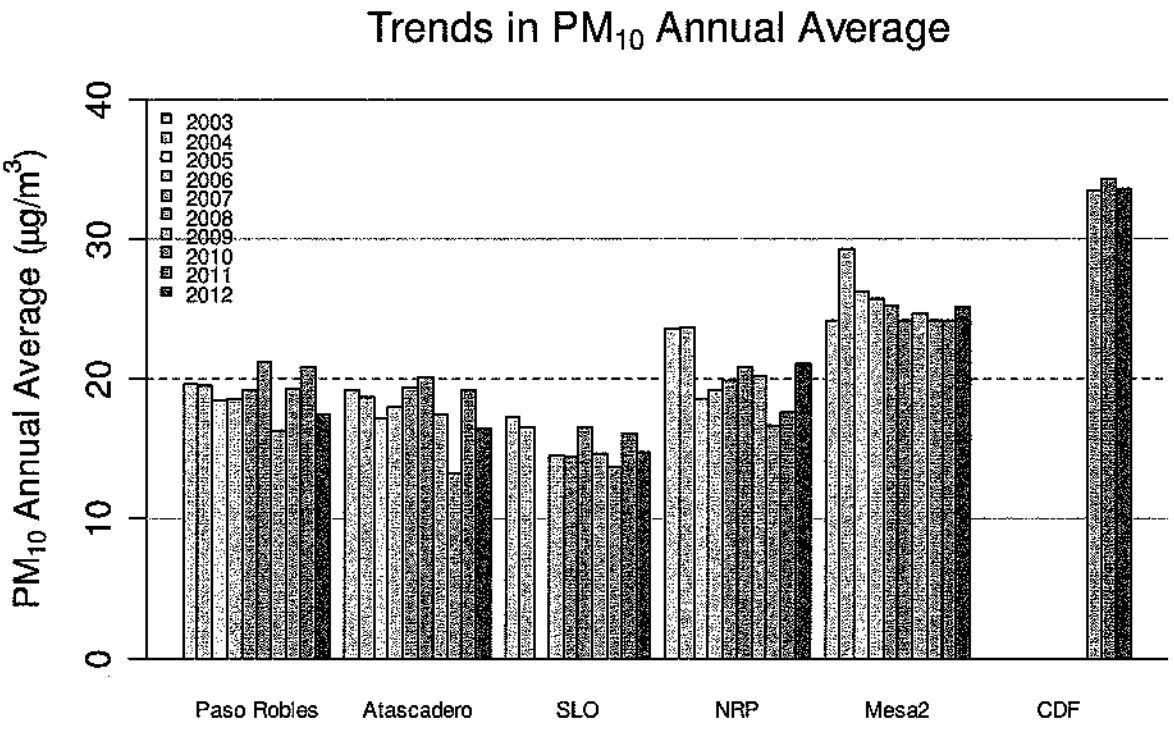

Morro Bay
Hours Above 65 ppb
0
200
600
1000
1400
8
21
12
0
3
13
4
11
2
0
2003
2005
2007
2009
2011


San Luis Obispo
0
200
600
1000
1400
6
44
4
5
8
17
16
18
12
2
2003
2005
2007
2009
2011


Nipomo Regional Park
Hours Above 65 ppb
0
200
600
1000
1400
58
57
13
0
22
50
27
39
24
1
2003
2005
2007
2009
2011

Countywide PM_{10} Trends, 2003 - 2012

The graph below depicts the annual arithmetic average PM_{10} concentrations at six locations in San Luis Obispo County over the past ten years; the SLO station moved in 2005 so data is not shown for that year. While occasional exceedences of the state PM_{10} standard occur at all sites, the monitors on the Nipomo Mesa at Nipomo Regional Park, Mesa2, and CDF are consistently higher than elsewhere in the county. The red dashed line marks the state PM_{10} standard for the annual arithmetic mean, 20 $\mu g/m^3$.



2012 Ambient Air Monitoring Network Plans

Each year SLOAPCD prepares an Ambient Air Monitoring Network Plan. This document is an annual examination and evaluation of the SLOAPCD's network of air pollution monitoring stations. The annual review of the State and Local Air Monitoring Stations (SLAMS) network is required by Title 40, Code of Federal Regulations, Part 58. The review process helps ensure continued consistency with the monitoring objectives defined in federal regulations, and it confirms that the information in state and federal monitoring records accurately describes each station.

These reports are a directory of existing and proposed monitors in the SLOAPCD's network and serves as a progress report on the recommendations and issues raised in earlier network reviews. The report also addresses ongoing network design issues.

The 2012 Ambient Air Monitoring Network Plan was published July 9, 2012;[5] it looked back to June 2011 (i.e., the publication of the previous Network Plan) and looked forward eighteen months to December 2013 anticipating any changes to the network. The Code of Federal Regulations requires specific detailed monitoring network information to be included in these reports along with a 30-day public review period prior to the submittal of the report to EPA. Any changes to the monitoring network implemented as a result of a review are reported in the annual air quality report. Below is a summary of the proposed and accomplished tasks from the 2012 Network Plan.

Ozone Monitoring Network

All ambient air monitoring stations in San Luis Obispo County, except for Mesa2, CDF, and Grover Beach, monitored ozone in 2012 (see Table 1). The SLAMS network thus features ozone monitors at Atascadero, Red Hills, Carrizo Plains, Paso Robles, Morro Bay, San Luis Obispo, and Nipomo. Only minor changes were made to this network: the calibration system at Nipomo Regional Park was upgraded to an API 700E calibrator in August 2012, and the ozone analyzer at Atascadero failed and was replaced by a new API T400 in January 2013. The latter was not anticipated in the 2012 Ambient Air Monitoring Network Plan.

Nitrogen Dioxide Monitoring Network

The SLAMS network in San Luis Obispo County features nitrogen dioxide (NO_2) monitors at Atascadero, Morro Bay, and Nipomo Regional Park. NO_2 levels have always been well below the state and federal standards at all locations in our county. For this reason, except in the case of Morro Bay, NO_2 monitoring is most useful here as an indicator of depletion of ambient ozone through titration with nitric oxide. Having at least one NO_2 monitor in each geographical region of the county also serves a long-term air quality surveillance role. Only minor changes were made to this network: at Nipomo Regional Park the calibration system was upgraded to an API 700E calibrator in August 2012, and the NO_x analyzer was upgraded to an API T200U in May 2013. The NO_x analyzer at Morro Bay failed and was replaced by a new API T200U in January 2013. The latter was not anticipated in the 2012 Ambient Air Monitoring Network Plan.

[5] Monitoring and Compliance Division, SLOAPCD, July 9, 2012. 2012 Ambient Air Monitoring Plan. San Luis Obispo Air Pollution Control District, San Luis Obispo, Calif. http://www.slocleanair.org/images/cms/upload/files/2012%20network%20plan.pdf

Sulfur Dioxide Monitoring Network

The sulfur dioxide (SO_2) monitoring network in San Luis Obispo County currently consists of one station, Mesa2. Operated since 1989, this monitor provides surveillance of a nearby oil refinery. It is considered middle scale and highest concentration for SO_2. Since it is located close to a major source for SO_2 emissions it is representative only of the immediate locality. The station was sited to optimize surveillance of the nearby coke calciner, which has since been shut down. At Mesa2 the SO_2 analyzer was upgraded from a Thermo 43C to an API T100U in March 2013, and the calibrator was upgraded to an API 700E in May 2013.

Particulate Monitoring Network

No changes were made to the particulate monitoring network in 2012, nor are any anticipated for 2013. Last year the particulate monitoring network in San Luis Obispo County consisted of seven PM_{10} monitors (at Paso Robles, Atascadero, Morro Bay, San Luis Obispo, Mesa2, CDF, and Nipomo Regional Park) and four $PM_{2.5}$ monitors (at Atascadero, San Luis Obispo, Mesa2 and CDF). This marks the first year when all particulate monitoring in the county was conducted by continuous monitors. In previous years, samples were collected manually once every six days using the Federal Reference Method (FRM) at one or more stations for at least part of the year. Continuous monitoring yields PM data for almost every day of the year and the data is available in real time. In contrast, FRM monitoring provided data for only every sixth day, and there was a significant lag between sample collection and when the data was available.

The PM_{10} network has been in place since 1988 and the $PM_{2.5}$ network since 1999. Originally, all particulate monitoring in the county was performed via FRM and as part of the ARB network. Over the intervening years, SLOAPCD's PM_{10} sampling program became independent, with its own sample processing facilities and operating procedures. Today, the Paso Robles and San Luis Obispo PM_{10} monitors remain part of ARB's network while all other samplers in the county are in the District's network. Starting in 2009 and continuing through 2011, FRM samplers were gradually replaced with continuous Beta Attenuation Monitors (BAMs). These MetOne BAM 1020 instruments are designated as a Federal Equivalent Methods (FEMs) by the EPA. As noted in the 2012 Ambient Air Monitoring Network Plan, the final station to be upgraded was San Luis Obispo, where the PM_{10} FRM sampler was upgraded to BAM 1020a continuous particulate monitor in April 2011, and the $PM_{2.5}$ FRMs were taken offline in March 2011 and replaced by a single BAM 1020a.

Meteorological Monitoring Network

Wind speed and wind direction are measured at all ten monitoring stations in the County. Ambient temperature is also measured at most sites. The 2012 Ambient Air Monitoring Network Plan noted and/or proposed the replacement of mechanical wind systems (i.e. cup and vane systems) with MetOne 50.5 sonic anemometers as several sites. All proposed upgrades were eventually carried out. The affected sites were Atascadero (upgraded in April 2012), Nipomo Regional Park (November 2012), CDF (May 2013), and Mesa2 (January 2013).

Site and Structural Upgrades

New roof decks and/or safety railings were installed at Morro Bay, Nipomo Regional Park, and Red Hills, as proposed or noted in the 2012 Ambient Air Monitoring Network Plan.

Appendix A: Ozone in Eastern San Luis Obispo County

The Red Hills and Carrizo monitoring stations routinely record ozone concentrations in excess of the federal 8-hour ozone standard (75 ppb), and the EPA has officially designated the eastern portion of the County as a nonattainment area for the ozone standard.[6] See Figure 1 for the boundary of the nonattainment area. In its recommendation for area designations, SLOAPCD and ARB argued that these exceedences are caused by the transport of ozone and ozone precursors from the San Joaquin Valley and the San Francisco Bay Area.[7] The EPA concurred, citing an analysis of local meteorological conditions and back trajectory calculations performed by SLOAPCD staff.[8] A similar analysis of 2012 data is presented below. This analysis shows that 2012 fits the same pattern as previous years, and suggests that highest ozone levels observed at Red Hills and Carrizo Plains are caused by transport of ozone and/or its precursors from outside of the county rather than by emissions originating within the county.

Red Hills

Figure A1, below, depicts bivariate plots showing the dependence of hourly ozone concentrations on the local wind speed and direction. Separate plots are shown for each season. In these plots, wind speed is plotted radially and pollutant level is shown by the color scale. These plots were produced using `openair`,[9] which employs an algorithm that first populates wind speed/wind direction bins with pollutant concentrations, then finds the average concentration in each bin, and finally fits a smooth surface to these averages. This surface is what is plotted in the color scale shown in the figure. Note that there tend to be few observations along the edge of surface (i.e. at the highest wind speeds), so uncertainty is highest along the edge. As shown in the figure, average ozone levels are highest in the summer (June, July, and August) and when winds blow from the east or northeast. Since the Red Hills site is located just 2 miles west of the county line, this suggests that the elevated ozone levels measured as the station come from across the county line. That high ozone levels are associated with high winds rather than stagnant conditions also suggests that transport is the cause.

Figure A2 shows similar plots, calculated with maximum ozone levels rather than average levels. (In other words, the surfaces were fit to the maximum hourly ozone level in each bin rather than to the average of all the hourly measurements in each bin.) These plots show that the very high ozone levels observed in spring, summer, and autumn occur when winds blow directly from the east. Spring and summer winds from due west (i.e. from within San Luis Obispo County) are also associated with elevated ozone levels, albeit not as high as those associated with easterly winds. This suggests that sources within San Luis Obispo County can contribute to elevated ozone levels at this site, even though the highest ozone levels are associated with winds from the east.

While these figures demonstrate that the highest ozone levels observed at Red Hills enter the immediate area of the station from just outside of the county, they do not provide insight into the ultimate source of the high ozone levels observed at the station. It is possible, for example, that ozone precursors could

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[6] 77 FR 30087, May 21, 2012.

[7] Letter from Mary D Nichols, Chairman, Air Resources Board, to Laura Yoshi, Acting Regional Administrator, U.S. Environmental Protection Agency, Region 9, dated March 11, 2009. http://www.epa.gov/glo/designations/2008standards/rec/letters/09_CA_rec.pdf

[8] Letter from Jared Blumenfeld, Acting Regional Administrator, U.S. Environmental Protection Agency, Region 9, to Edmund G. Brown, Jr., Governor of California, dated December 9, 2009. http://www.epa.gov/glo/designations/2008standards/rec/region9R.htm

[9] Carslaw, D.C. and K. Ropkins, 2012. "`openair` — an R package for air quality data analysis." *Environmental Modelling & Software*. Volume 27-28, 52-61.

originate within the county, are then blown eastward into Kern County, and then finally blown westward back into San Luis Obispo County where the resulting ozone is measured at Red Hills. To investigate this issue, back trajectories were calculated for Red Hills for the top six daily 8-hour ozone days in 2012. In its analysis cited above, EPA used the National Oceanic and Atmospheric Administration's (NOAA) Hybrid Single-Particle Lagrangian Integrated Trajectory ("HYSPLIT") tool to calculate back trajectories.[10] EPA calculated trajectories ending at 500 meters above ground level (m AGL) and used EDAS 40 km meteorological data. The back trajectories presented below were calculated analogously. For each HYSPLIT run, 24-hr back trajectories were calculated to bracket each hour included in the day's highest 8-hour ozone concentration.

The results of the HYSPLIT back trajectory calculations for 2012 are shown in Figures A3-A8. In all cases, the trajectories approach the station from east or northeast, which is consistent with the pattern suggested by Figures A1 and A2. In most cases, the 24-hour back trajectories originate in the San Francisco Bay Area or the northern San Joaquin Valley and then head southeast along the San Joaquin Valley. They finally turn west or southwest and thus arrive in San Luis Obispo County and at the Red Hills station from the east or northeast. May 9th (Figure A8)—the sixth highest day with an 8-hour ozone concentration of 76 ppb—is the exception. All of the back trajectories for this period originate at ground level near the point where Tulare, Kern, King Counties meet and then loop south into interior Kern County before arriving at the Red Hills station from the east.

As can be seen in Figures A3-A8, none of the back trajectories spend significant time over San Luis Obispo County, and none approach the station from the interior of the county where they could have been influenced by emissions from the county's urban centers. All of the trajectories approach Red Hills from the east or northeast and spend essentially the minimum possible amount of time over the county. It therefore appears that ozone transport from outside of the county is the primary cause of the highest levels observed at Red Hills in 2012.

Carrizo Plains

While the Red Hills station is located just two miles from the county line, the Carrizo Plains station is located more in the interior of the county, so no matter what its trajectory, an air mass must traverse the county for some time before reaching the station. Furthermore, the Carrizo Plains basin is bounded on one side by the Temblor Range which runs northwest to southeast, on the other by the La Panza Range—also running northwest to southeast—and to the south by the Caliente Range which separates it from Santa Barbara County. These terrain features tend to channel the winds along the northwest—southeast axis, as shown in the wind rose plotted in Figure A9.

This channeling of winds implies that bivariate plots for this site are less likely to provide insight into the source of the high ozone levels observed here. Nonetheless, such plots are provided as Figures A10 and A11. As expected, these plots show that high ozone levels tend to arrive at the Carrizo Plains station from the north or northwest. Spring is an exception, with the highest observed ozone levels coming from the northeast.

For Carrizo Plains, back trajectory analysis is more informative. HYSPLIT back trajectories were calculated for all three days in 2012 that exceeded the federal 8-hour standard, employing the same settings as noted above for Red Hills. The highest 8-hour average for Carrizo Plains was recorded on July 11th, the

[10] Draxler, R.R. and Rolph, G.D., 2013. HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) Model access via NOAA ARL READY Website (http://www.arl.noaa.gov/HYSPLIT.php). NOAA Air Resources Laboratory, College Park, MD.

same day as for Red Hills. All but one of the trajectories for this 8-hour period (Figure A12) enter San Luis Obispo in the vicinity of Red Hills or further southeast across the Temblor Range before reaching the Carrizo Plains site. Within San Luis Obispo County, they traverse only sparsely populated, undeveloped territory, used mostly as rangeland or for dry farming. Local emissions are therefore unlikely to have contributed to the high ozone levels observed at the station that day. For the second highest ozone day (Figure A13) the trajectories also start in the San Francisco Bay Area or San Joaquin Valley and enter the county from across the Temblor Range before arriving on the Carrizo Plain; local contributions to these high levels are similarly unlikely.

On the third highest day (Figure A14), most of the trajectories follow the same pattern as in Figure A13, but towards the end of the 8-hour averaging period, winds shift direction and blow strongly from the west. The final trajectory of the period traverses the interior of county before reaching the station from the west at 4:00 pm, and the trajectory reaching the station at 3:00 pm is entirely within the county. At 69 ppb, the hourly ozone level measurement collected from 3:00-3:59 pm (i.e. the hour in between the last two trajectories) is the lowest of the hourly values comprising the day's maximum 8-hour average. Taken together, these observations suggest that the high ozone levels observed that day were driven by transport from outside of the county.

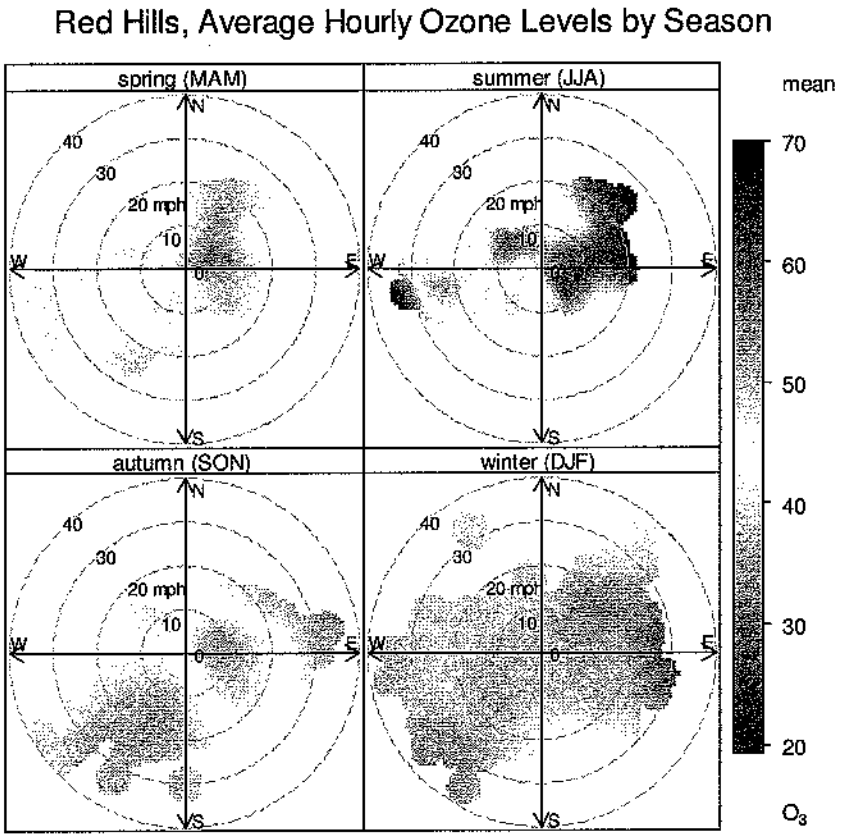

Figure A1. Bivariate plots showing average hourly ozone levels at Red Hills by wind speed, wind direction, and season for 2012.

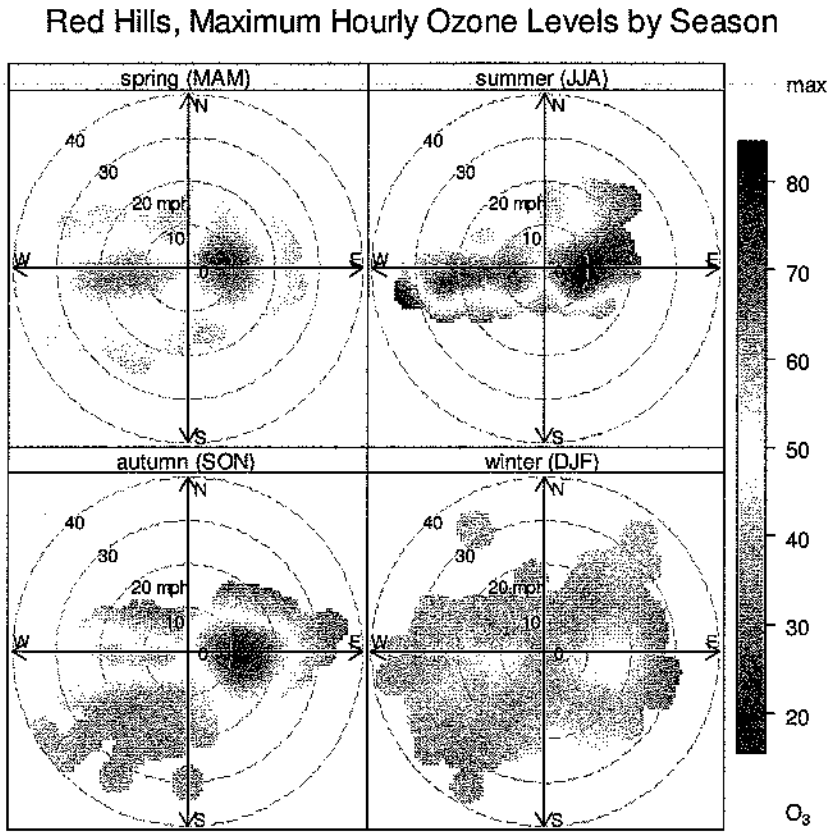

Figure A2. Bivariate plots showing maximum hourly ozone levels at Red Hills by wind speed, wind direction, and season for 2012.

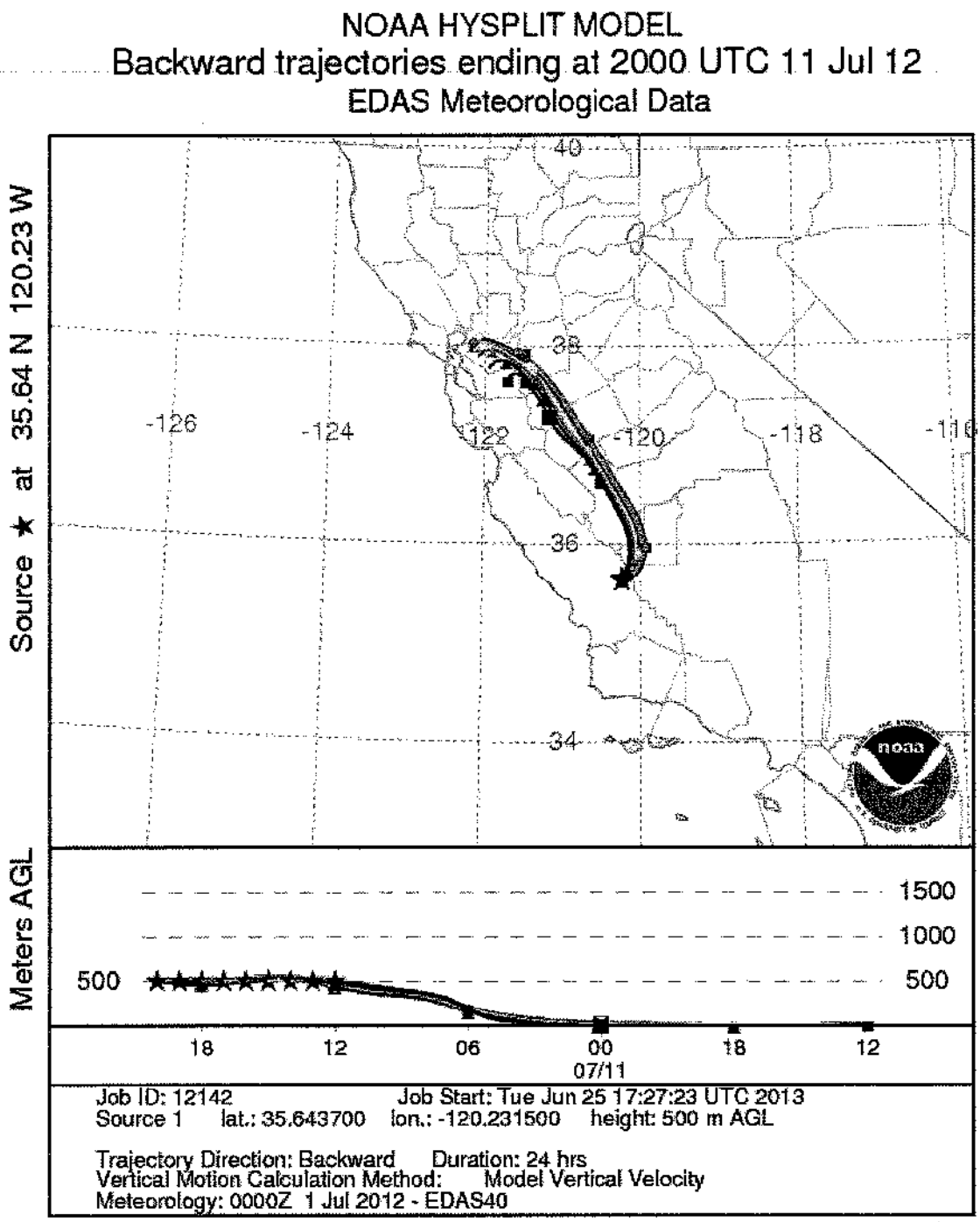

Figure A3. HYSPLIT back trajectories for the highest 8-hour ozone concentration (87 ppb) measured at Red Hills in 2012, July 11th, 4:00 am though 11:59 am PST (UTC-8).

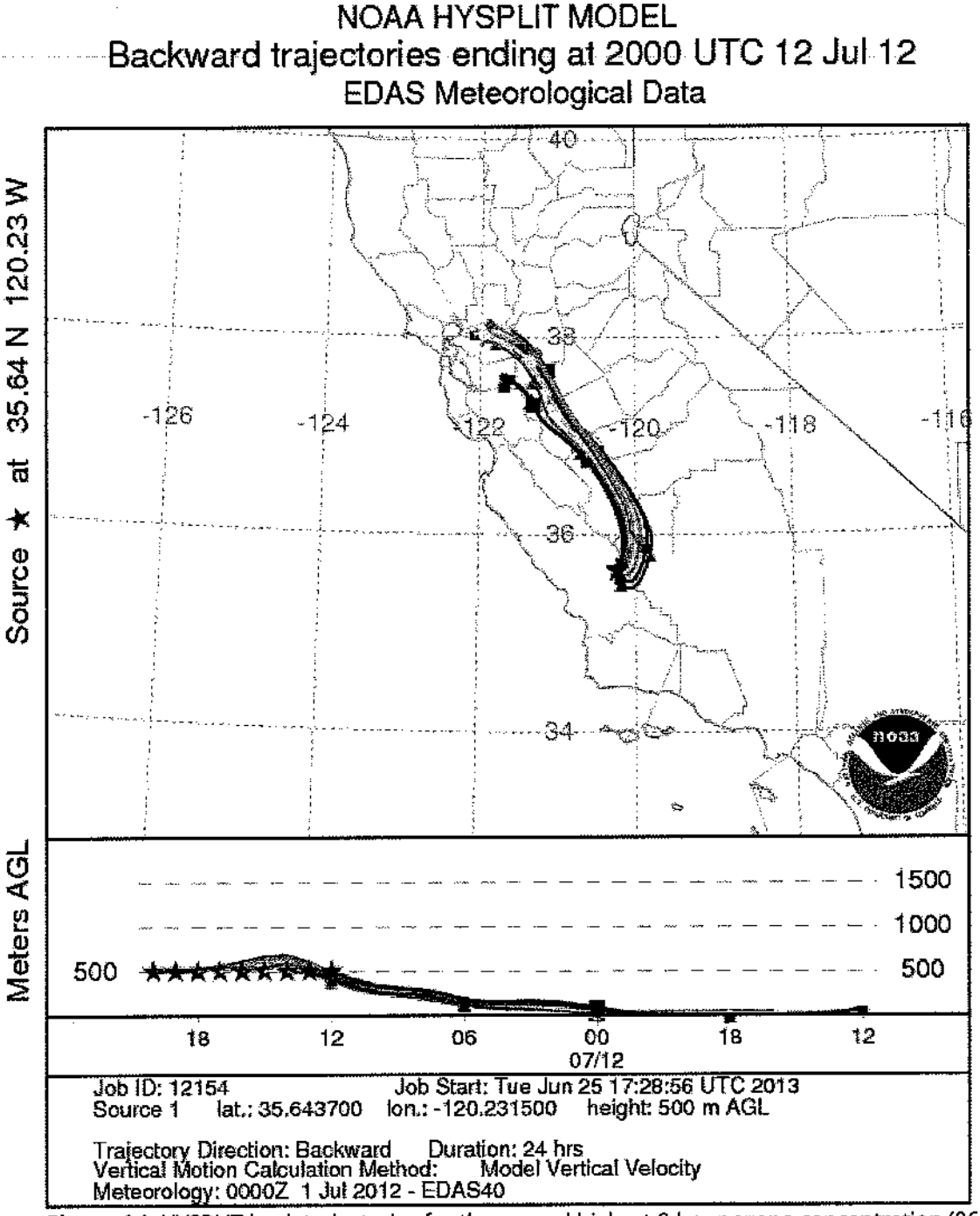

Figure A4. HYSPLIT back trajectories for the second highest 8-hour ozone concentration (86 ppb) measured at Red Hills in 2012, July 12th, 4:00 am though 11:59 am PST.

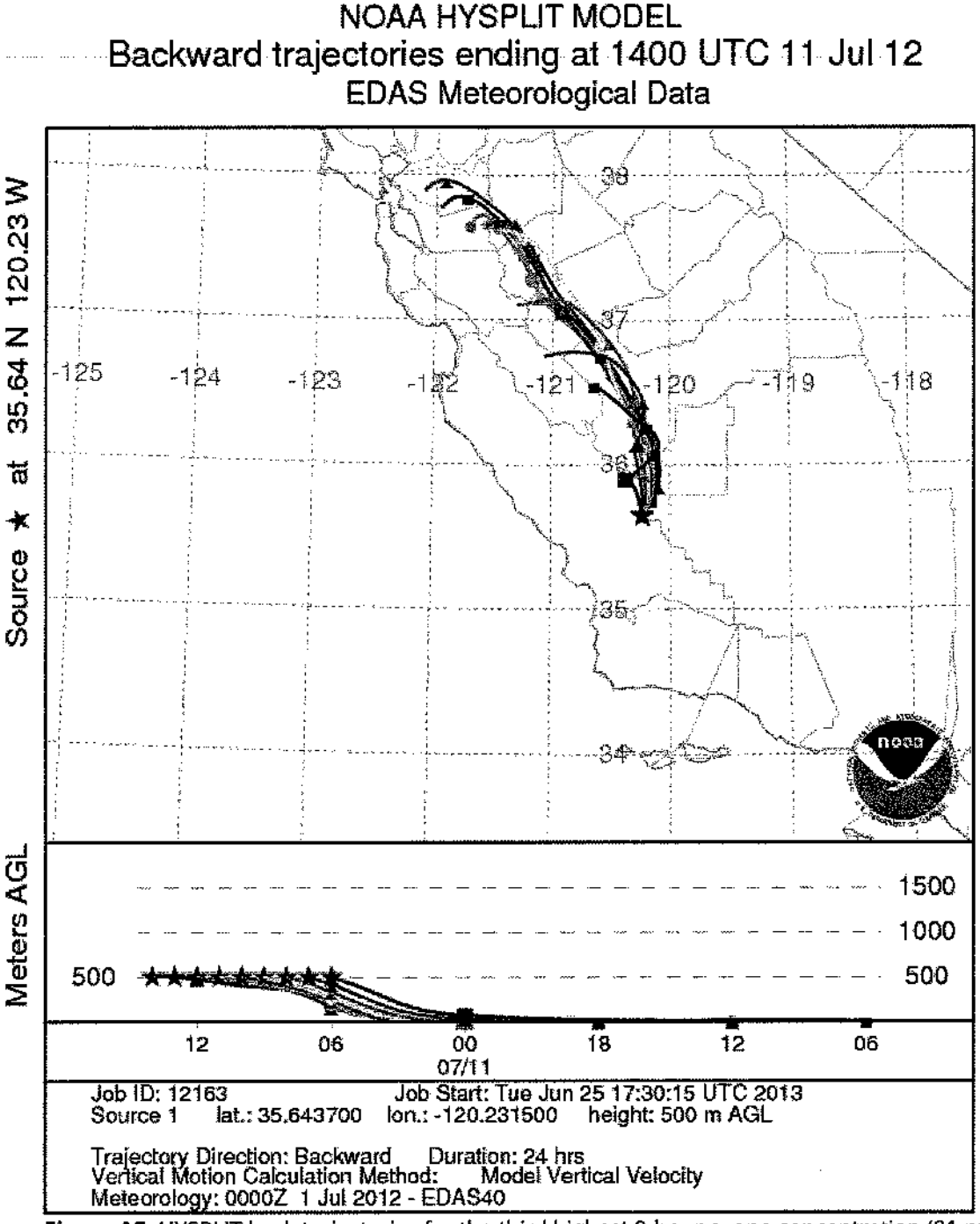

Figure A5. HYSPLIT back trajectories for the third highest 8-hour ozone concentration (81 ppb) measured at Red Hills in 2012, July 10th, 10:00 pm, through July 11th, 5:59 am PST.

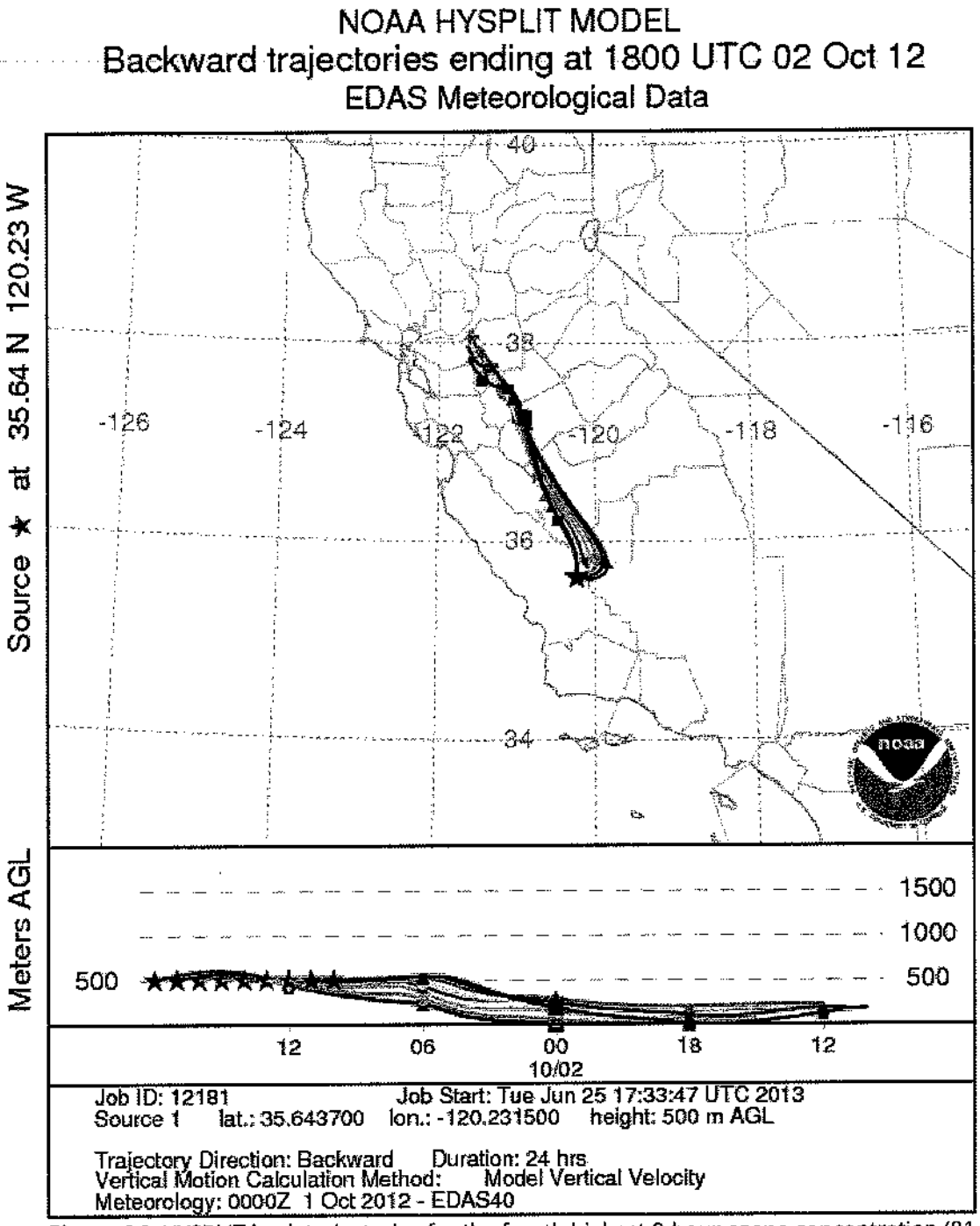

Figure A6. HYSPLIT back trajectories for the fourth highest 8-hour ozone concentration (81 ppb) measured at Red Hills in 2012, October 2nd, 2:00 am through 9:59 am PST.

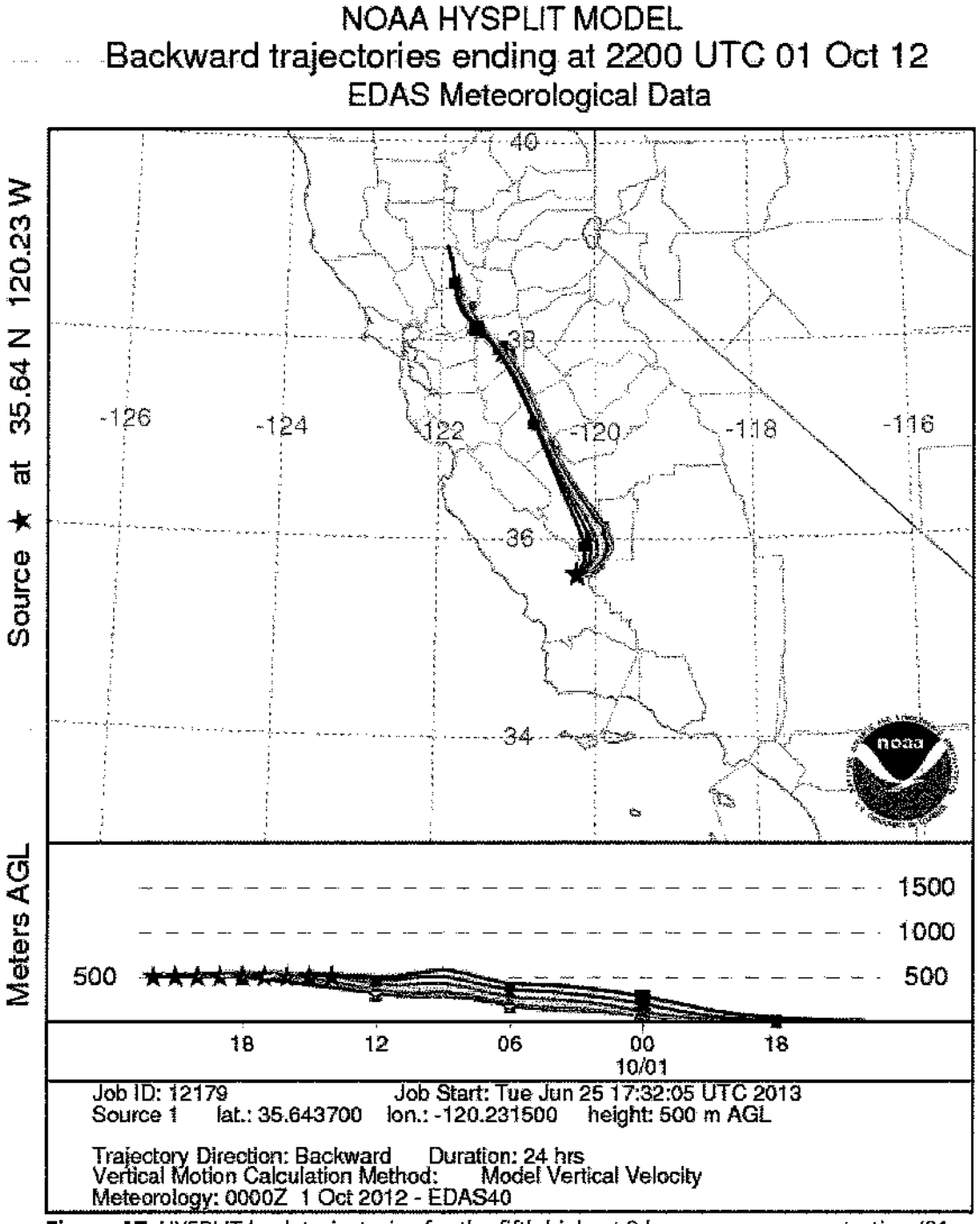

Figure A7. HYSPLIT back trajectories for the fifth highest 8-hour ozone concentration (81 ppb) measured at Red Hills in 2012, October 1st, 6:00 am through 1:59 pm PST.

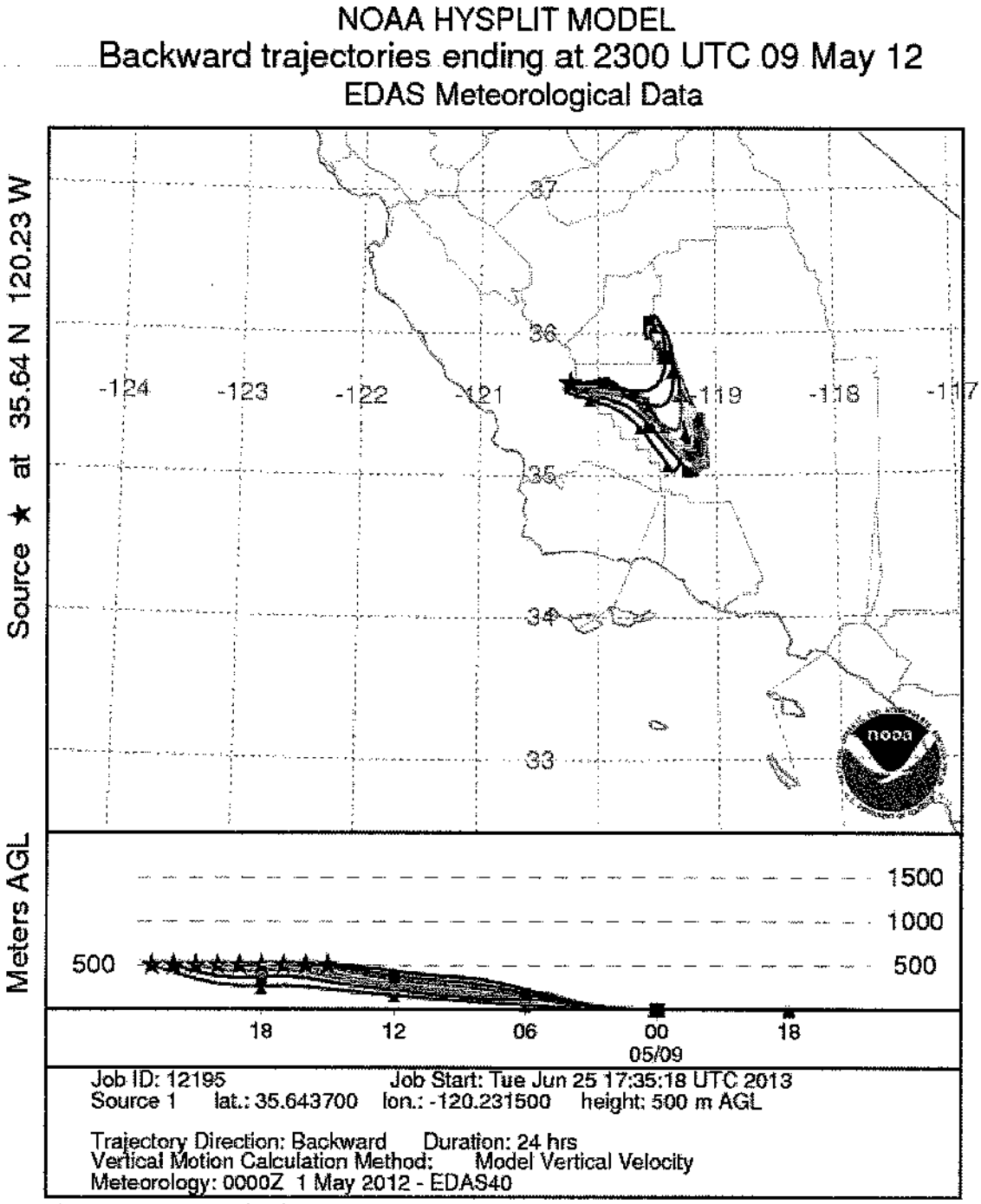

Figure A8. HYSPLIT back trajectories for the sixth highest 8-hour ozone concentration (76 ppb) measured at Red Hills in 2012, May 9th, 7:00 am through 2:59 pm PST.

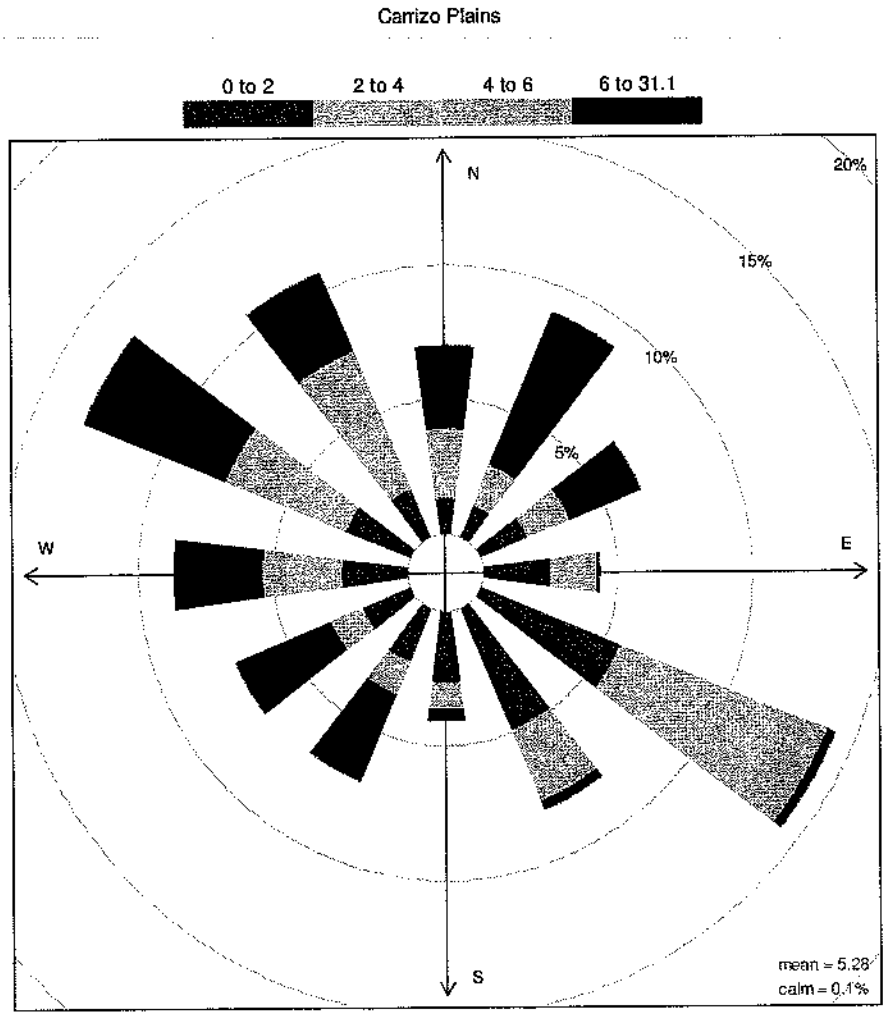

Figure A9. Wind rose for Carrizo Plains based on all wind observations for 2012. The color scale for wind speed in miles per hour.

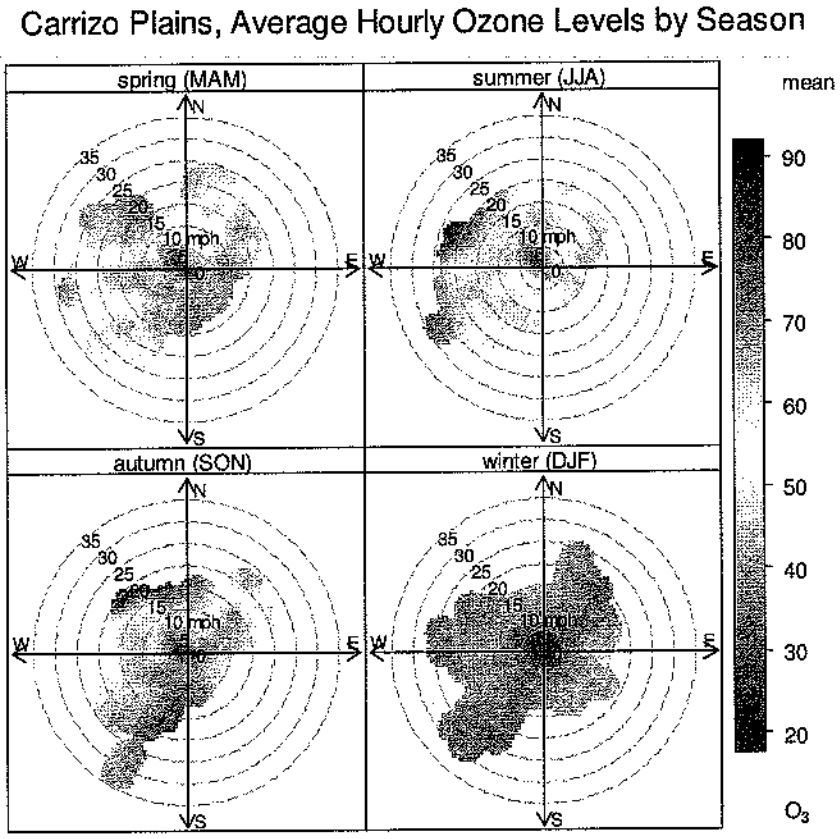

Figure A10. Bivariate plots showing average hourly ozone levels at Carrizo Plains by wind speed, wind direction, and season for 2012.

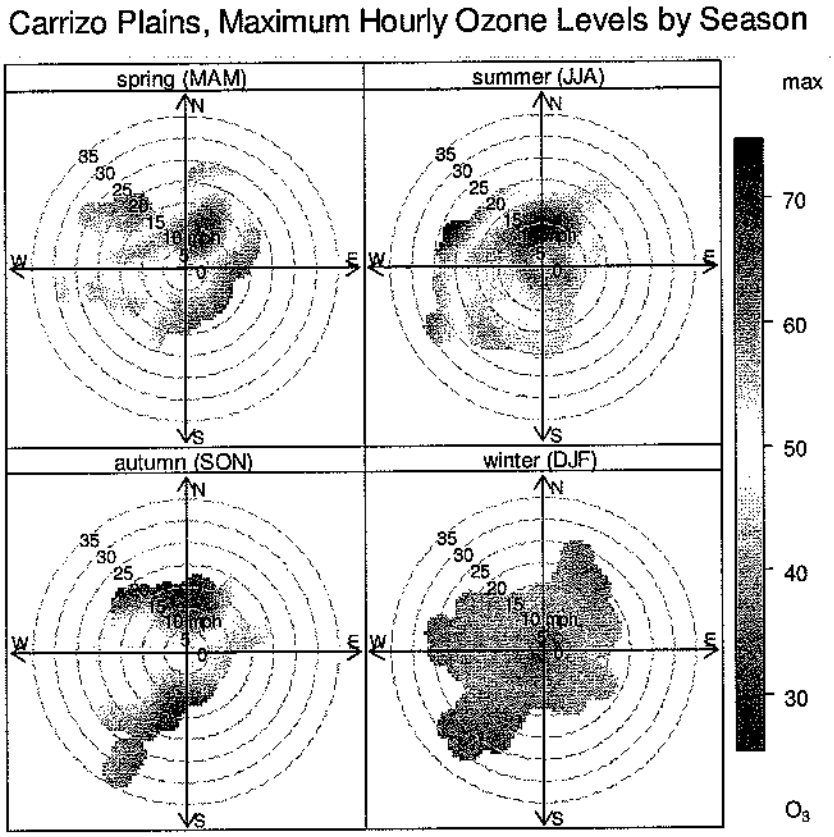

Figure A11. Bivariate plots showing maximum hourly ozone levels at Carrizo Plains by wind speed, wind direction, and season for 2012.

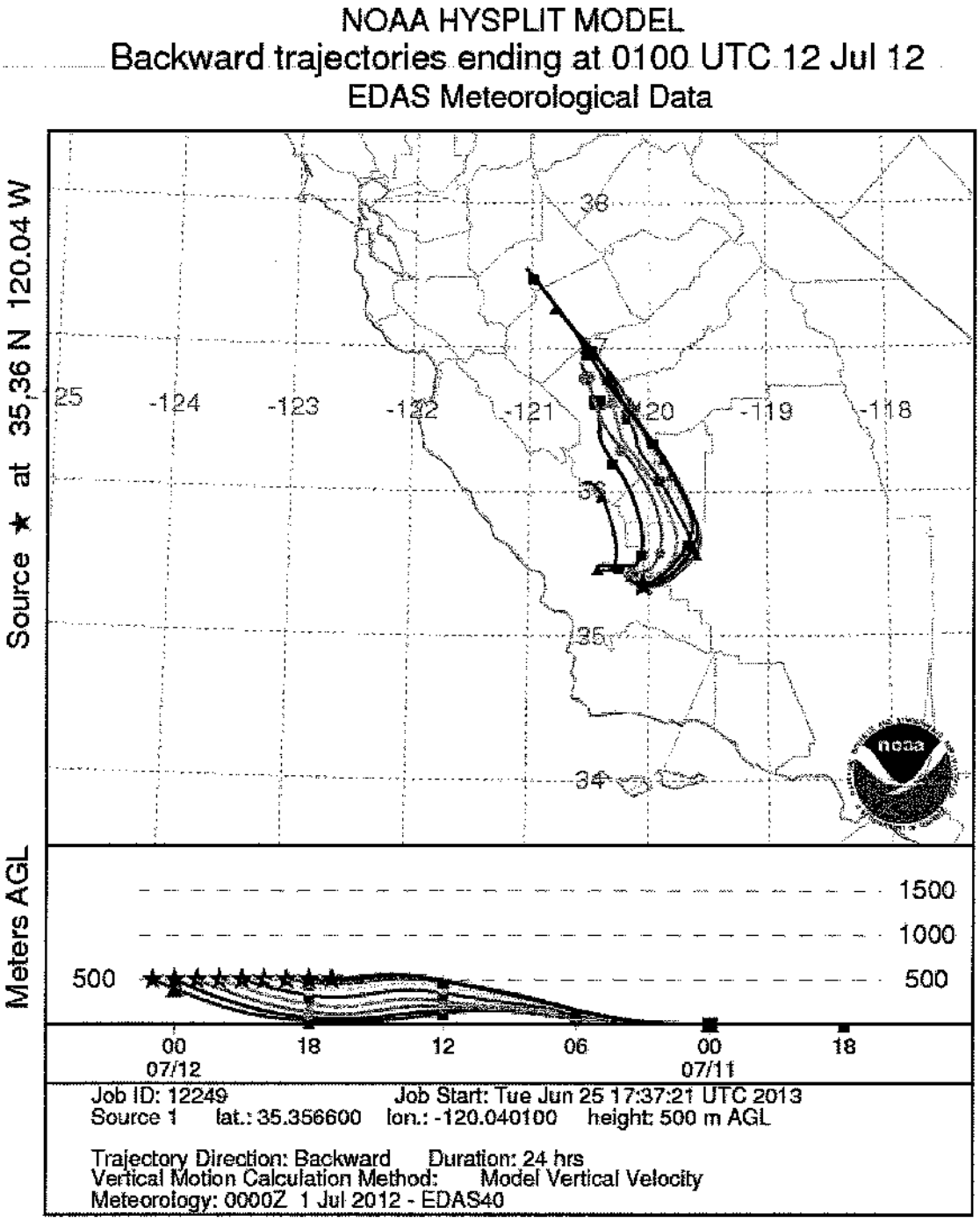

Figure A12. HYSPLIT back trajectories for the highest 8-hour ozone concentration (85 ppb) measured at Carrizo Plains in 2012, July 11th, 9:00 am though 4:59 pm PST.

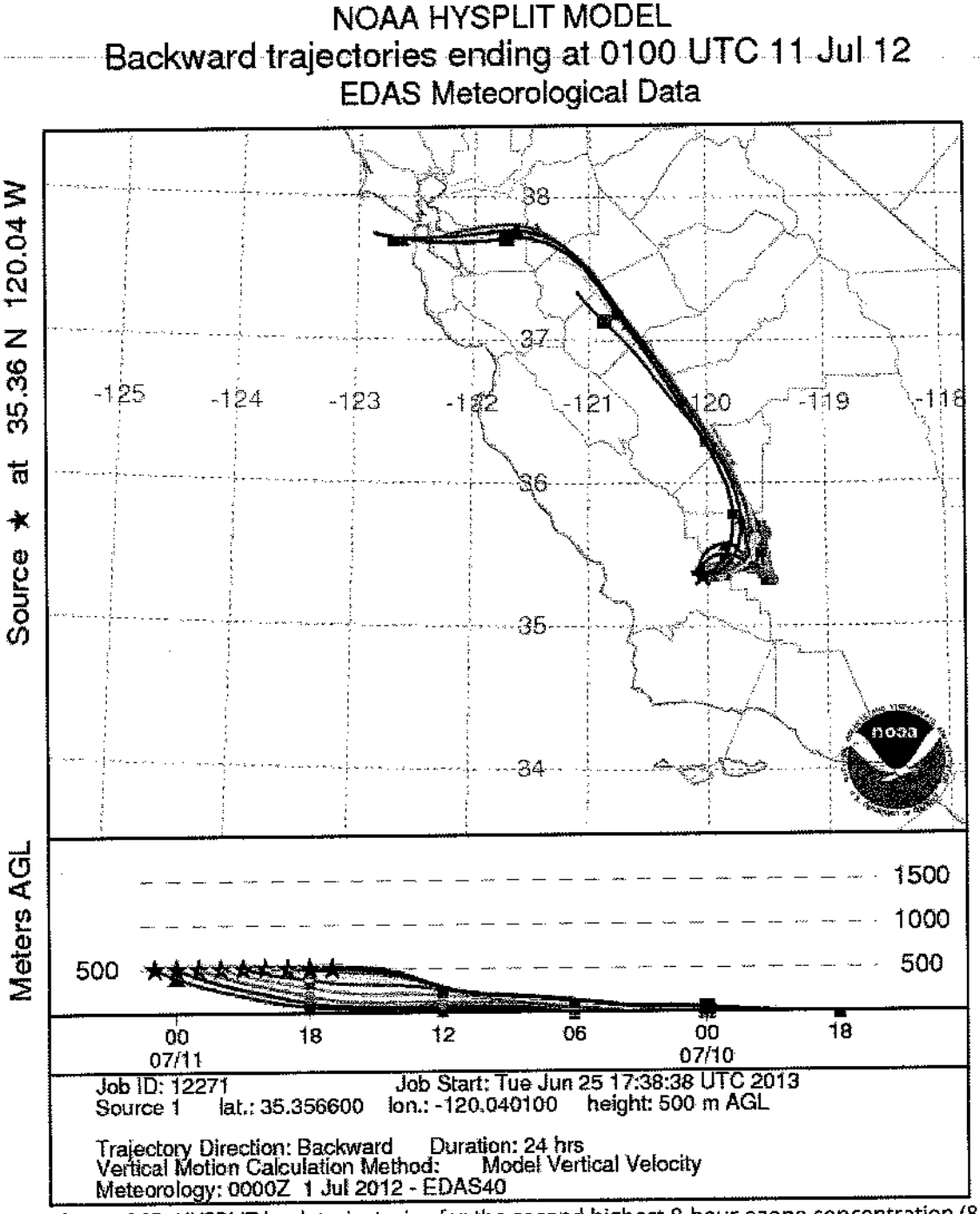

Figure A13. HYSPLIT back trajectories for the second highest 8-hour ozone concentration (82 ppb) measured at Carrizo Plains in 2012, July 10th, 9:00 am though 4:59 pm PST.

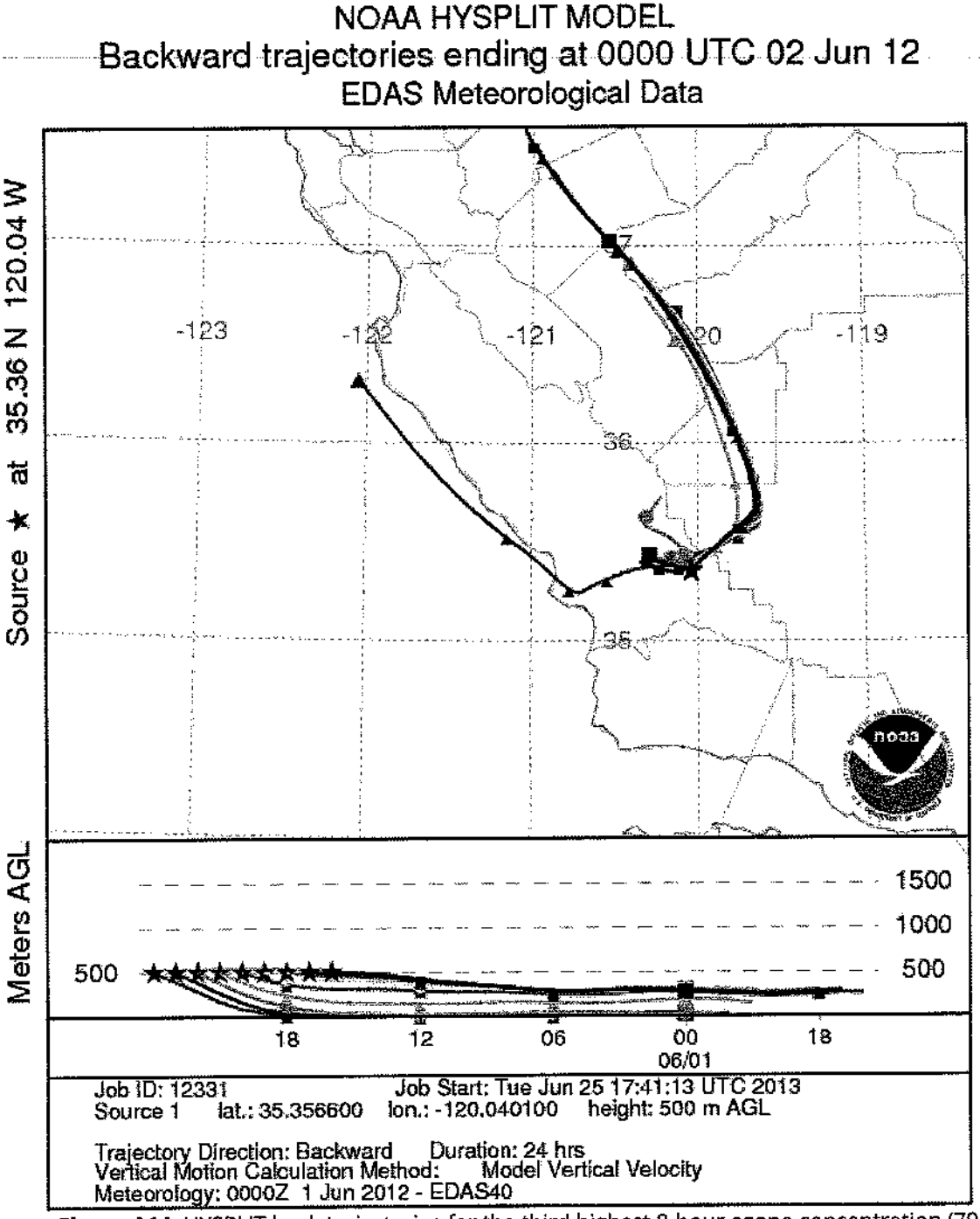

Figure A14. HYSPLIT back trajectories for the third highest 8-hour ozone concentration (79 ppb) measured at Carrizo Plains in 2012, June 1st, 8:00 am though 3:59 pm PST.

Appendix B: Coastal Dune Influence on South County PM_{10}

In contrast to the rest of the county, where PM_{10} and $PM_{2.5}$ levels have trended downward over the last 20 years, the Nipomo Mesa continues to see high levels of particulate matter pollution; there is no evidence of improvement at CDF or Mesa2, and only slight improvement has been observed at Nipomo Regional Park.[11] Studies by the SLOAPCD have determined that the dune complex along the coast of the Five Cities area is the source of the high particulate matter levels measured at these stations.[12,13]

The most recent SLOAPCD study used saturation monitoring on the Nipomo Mesa to better characterize the shape and extent of the dust plume that is generated when high winds blow across the dunes.[1] The result of this effort is shown below in Figure B-1. Of the three permanent monitoring stations in the area, CDF consistently records the highest PM_{10} levels. The area of the Nipomo Mesa where PM_{10} levels were found to most closely resemble those observed at this station is relatively small and is confined to the area immediately around and to the west the station, as depicted in purple in Figure B-1. This area

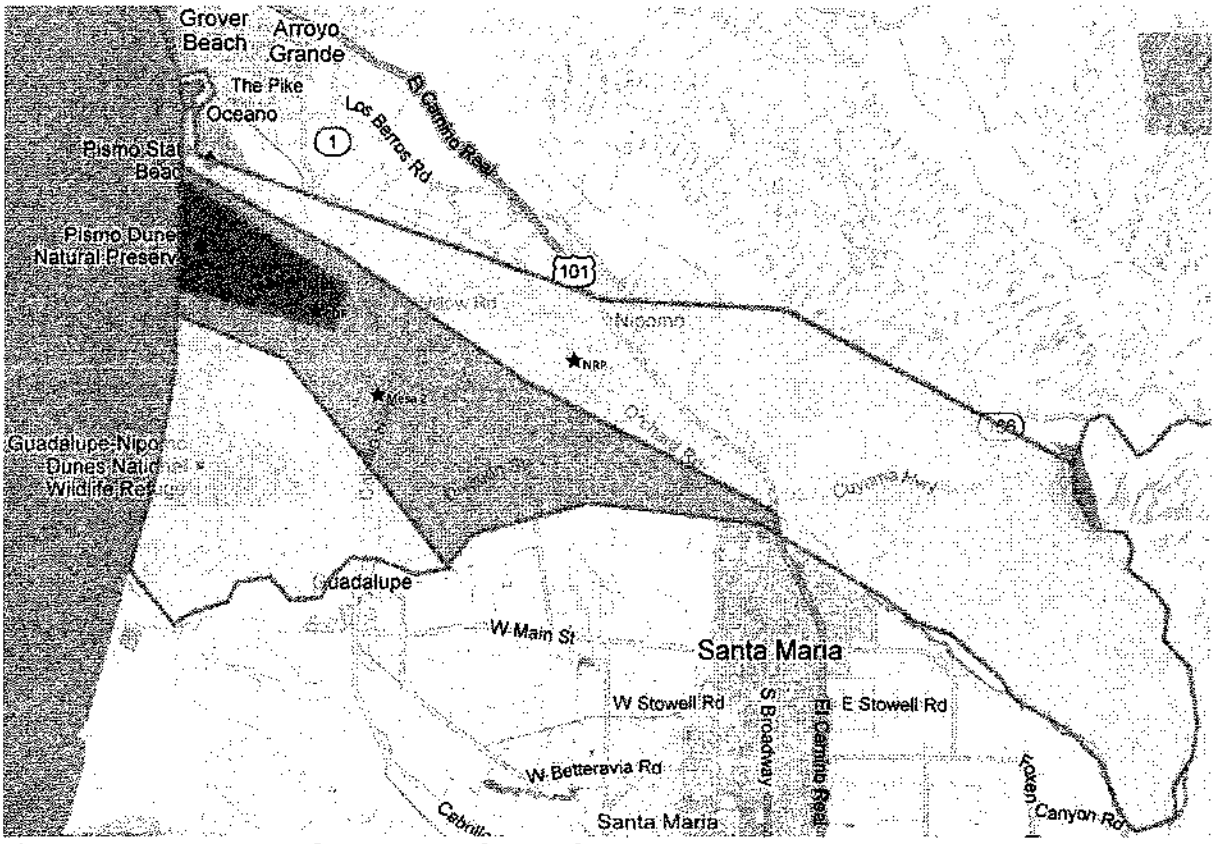

Figure B-1. Nipomo Mesa forecast map, from Reference 1.

[11] Tupper, K.A., March 2013. Air Quality Trends, 1991-2011. San Luis Obispo County Air Pollution Control District, San Luis Obispo, Calif. http://www.slocleanair.org/images/cms/upload/files/Final%20AQ%20Trends%282%29.pdf

[12] San Luis Obispo County Air Pollution Control District, 2007. Nipomo Mesa Particulate Study. San Luis Obispo, Calif. http://www.slocleanair.org/images/cms/upload/files/air/pdf/pm_report2006_rev1.pdf

[13] Craig, J., Cahill, T., and Ono D., February 2010. South County Phase 2 Particulate Study. San Luis Obispo County Air Pollution Control District, San Luis Obispo, Calif. http://www.slocleanair.org/images/cms/upload/files/pdf/PM2-final_report.pdf

is referred to as the "CDF Forecast Zone" in SLOAPCD Air Quality forecasts and related materials. When winds are high and from the west or northwest, PM_{10} levels in this area are anticipated to be similar to those observed at CDF.

Mesa2 records the second highest PM_{10} levels on the Nipomo Mesa, and saturation monitoring determined that during high wind events, a large swath of the Mesa and a small part of Oceano experience PM_{10} levels similar to those seen at this site. This area is depicted in the middle shade of pink in Figure B-1, and is referred to as the "Mesa2 Forecast Zone" in SLOAPCD forecasts.

Of the three permanent monitoring stations on the Mesa, Nipomo Regional Park records the lowest PM_{10} levels. Saturation monitoring determined that the area depicted in light pink in Figure B-1 is most similar to this site in terms of PM_{10} levels during wind events. This area is referred to as the "NRP Forecast Zone" in SLOAPCD forecasts.

2012 PM_{10} on the Nipomo Mesa

Bivariate plots depicting 24-hr PM_{10} levels as a function of wind speed and direction—analogous to the ozone plots presented in Appendix A—show that coastal dunes continue to be the dominant influence on Nipomo Mesa PM_{10} levels in 2012. For CDF, average and maximum 24-hr PM_{10} levels by wind speed and direction bins are shown in Figure B-2, below. The highest levels are observed when winds are from the northwest, and increasing wind speeds correspond to higher peak and average PM_{10} levels. Though not apparent from these graphs, these conditions occur far more frequently in late spring and early summer than other times of the year. These observations corroborate SLOAPCD's previous conclusions and point to the Oceano Dunes State Vehicular Recreation Area (ODSVRA) as the primary source of the high particulate levels measured at this station.

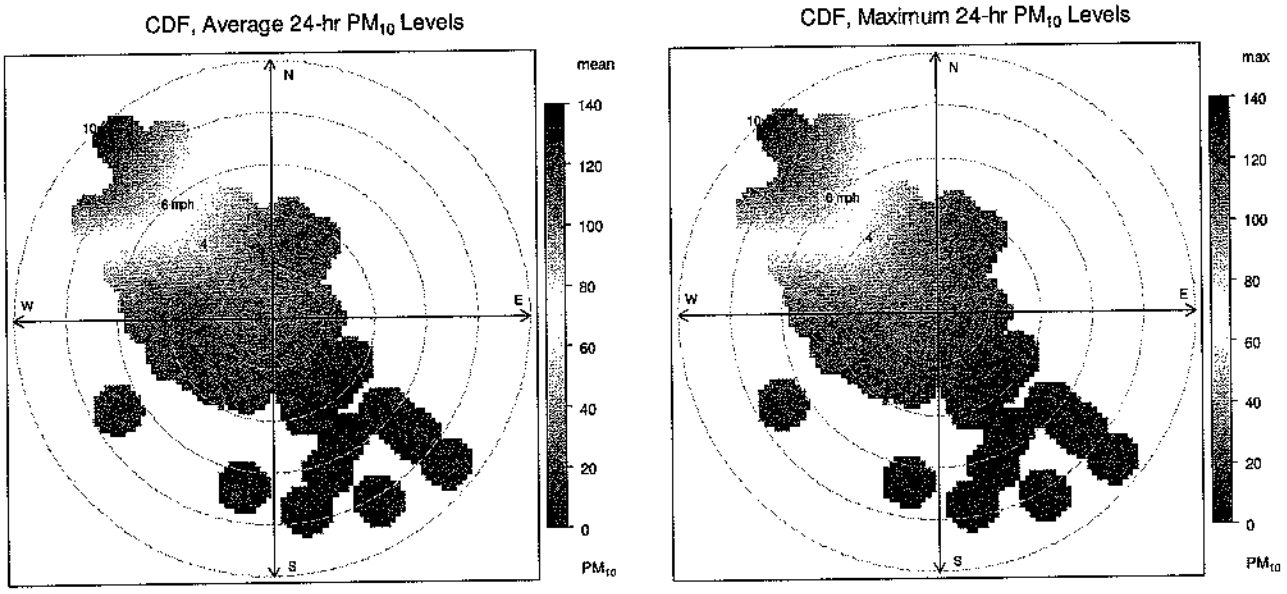

Figure B-2. Bivariate plots showing average (left panel) and maximum (right panel) 24-hour PM_{10} levels at CDF by wind speed, wind direction for 2012.

Figures B-3 and B-4 show the same plots for Mesa2 and Nipomo Regional Park. The plots for Mesa2 display the same pattern as for CDF: high northwesterly winds correspond to high PM_{10} levels, and point to the ODSVRA as the source of the high particulate levels measured at the station.

For Nipomo Regional Park, a somewhat different pattern is evident. High PM_{10} levels still correspond with high winds from the west, as would be expected with the ODSVRA as the dominant regional source. However, compared to CDF and Mesa2—which are close to the shore—PM_{10} levels are significantly lower at NRP, which is further from the coast and centrally located in the community. Some higher PM_{10} levels measured at NRP also occur under northeasterly and southeasterly winds, reflecting influence from sources other than the dunes under those conditions. Though not apparent from Figure B-4, these events typically occur during the late fall and winter months, which coincides with the period when residential and opening burning is allowed in that area.

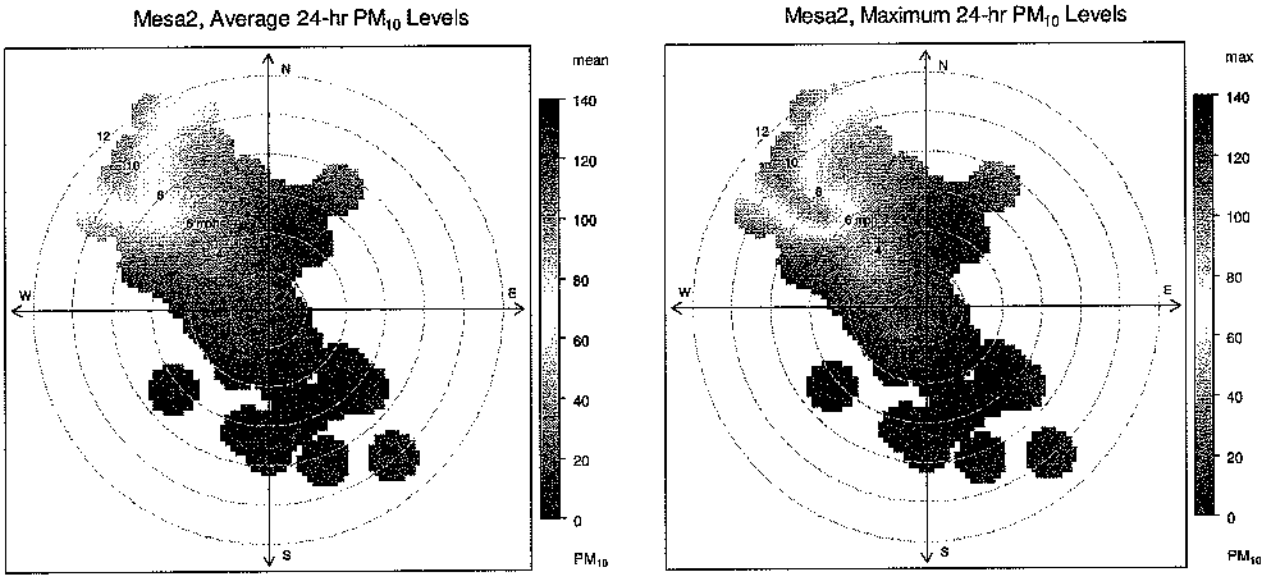

Figure B-3. Bivariate plots showing average (left panel) and maximum (right panel) 24-hour PM_{10} levels at Mesa2 by wind speed, wind direction for 2012.

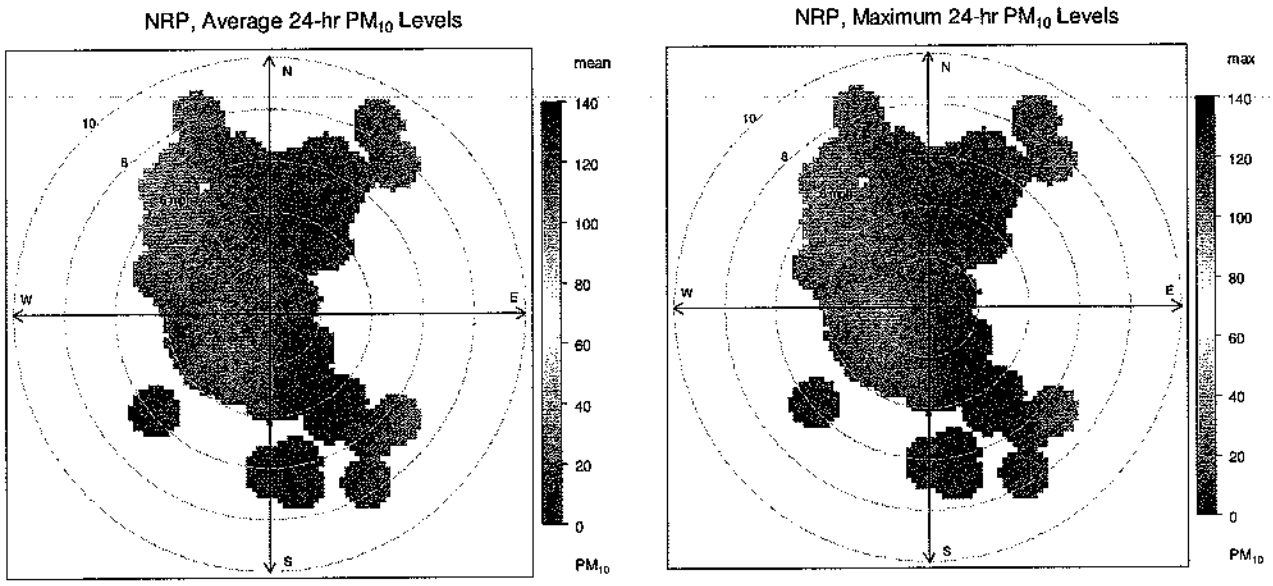

Figure B-4. Bivariate plots showing average (left panel) and maximum (right panel) 24-hour PM_{10} levels at Nipomo Regional Parks by wind speed, wind direction for 2012.